THE CAUVERY RIVER DISPUTE:
HYDROLOGICAL POLITICS IN INDIAN FEDERALISM

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ABSTRACT

India's Cauvery River dispute first appeared in the late 1880s when the Madras Presidency objected to the irrigation project plans of the upstream princely state of Mysore. This study investigates the modern incarnation of the Cauvery dispute which began in 1970 when Tamil Nadu's complaints against Karnataka's reservoir projects in the Cauvery Basin escalated into demands that the central government appoint a tribunal to adjudicate the dispute. The conflict has continued since then and as of 1983 no resolution is imminent.

Two analytical approaches--to river disputes and to Indian federalism--are especially helpful in explaining the Cauvery dispute. The river dispute literature is particularly useful in demonstrating why there is a conflict at all, why the states have presented the types of arguments they have, and what hydrologic factors make this river dispute difficult to solve. The central government in its role as mediator, however, will have the greatest effect on the interstate river dispute's outcome. This makes it important to understand India's prevailing system of centre-state political relations.

The thesis outlines in considerable detail the technical aspects of the dispute and chronicles the negotiations that have gone on between Tamil Nadu and Karnataka. The main argument of the thesis is that the Indian central government has acted in the Cauvery and other river disputes according to its interpretation of the political costs and benefits involved in resolving the dispute. Meanwhile, the state
governments, which are much more concerned with the hydrology and
development of the Cauvery, have contradictory views of these political
costs and benefits. It would appear that the dispute will be resolved
when Karnataka has interrupted the Cauvery's flow enough to force Tamil
Nadu to accept a compromise to be negotiated by the Government of India.
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CHAPTER I

Introduction

This study will investigate the Cauvery River dispute between the states of Tamil Nadu and Karnataka in South India. The historical antecedents of the dispute are to be found in the late 1880s when the leaders of the princely state of Mysore decided that irrigation works in the Cauvery Basin of Mysore would have to be improved. Downstream Madras Presidency objected, claiming that these upstream projects would seriously harm already existing irrigation projects in Madras. The Cauvery dispute's modern incarnation developed about fifteen years ago when Madras state (now Tamil Nadu) began to object to Mysore's (now Karnataka) proposed dam projects in the Cauvery Basin. The dispute has continued since then and as of 1983, no resolution of the conflict is imminent.

In a developing nation such as India, river disputes have debilitating effects on the country's productivity. In India seventy-five percent of the population is directly dependent on agriculture for its livelihood, thus making water the country's most valuable resource. A river dispute hinders development of power and irrigation projects, prevents creation of new industries, and inhibits improvement of existing agriculture. It is essential that river disputes be settled as quickly as possible so that projects, especially those taking into account the hydrology of entire river basins, may be planned and implemented. Unfortunately, however, river disputes the world over, and the Cauvery is no exception, are noted for their longevity.

In India and elsewhere there has been a general pattern of population
growth and development in river basins which has ultimately led to disputes. In a river basin there is a developmental dichotomy between the higher and lower reaches of the river. The terrain of a basin's upper area nearest the river's source is generally hilly and rough compared with the land near the river's mouth. These topographical features mean that the lower basin will have at an earlier date a denser population because the technological requirements for developing a river basin near the mouth are minimal. The consequent demand for water in the lower basin will lead to "a more rapid overall development" there as compared with the upper basin (Irrigation Commission, 1972, v.1: 340).

As population pressures increase, the upper basin will become more heavily populated, thus creating a higher demand for water. When technological expertise increases and the people of the upper basin area develop their portion of the river, utilisation of water will increase and, if the river's resources are inadequate (whether in fact or perception), the people of the lower basin will complain that their rights over the river's waters are being violated. River disputes are normally instigated by lower riparians and this is also true of the Cauvery dispute.

This general pattern of river basin development lends itself to the concept of "centre-periphery" relations. The "centre" is the lower basin with its rich agricultural land and highly developed irrigation networks while the "periphery" is the upper basin with its rugged terrain and minimal irrigation system. As the "periphery's" economic and technological capacity increases, it will try to rectify what it sees as an imbalance between itself and the rich "centre." The "periphery's" jealousy of the "centre" will
hinder the settlement of any river dispute that arises between them.

The literature pertaining to river disputes focuses on rivers of the international arena. This literature has looked at the national actors in river disputes and has tried to explain why it is so difficult for the disputants to reach a compromise settlement through negotiations. Frequently the agreements reached are far from comprehensive, leaving many of the substantive issues of a dispute unsettled.

A river dispute in the sub-national interstate context involves not only the disputants but the central government as well. The river dispute literature, with its emphasis on national actors, does little to analyse the role of mediators or arbitrators of conflicts. When an interstate dispute is discussed it is essential that we understand the central government's actions. How is a federal government's behaviour in such a dispute to be explained? How does the centre affect the course and outcome of the dispute? Where federal political systems are involved, explanation may be had through an understanding of the prevailing system of centre-state relations. While factors such as the properties of river water as an exploitable resource and people's perceptions of water enhance our understanding of river disputes, theories of federalism contribute the most to an explanation of interstate river disputes.

This thesis, then, will employ a framework of analysis incorporating theories which explain the Indian political system and theories which describe river disputes. The main argument of this thesis is that the Indian central government has acted in the Cauvery and other river disputes, based on its interpretation of the political costs and benefits involved.
Likewise, while the state governments are much more intimately connected with the hydrology and development of a river, their leaders are also most concerned with political costs and benefits. The difficulty in solving these disputes lies in the different governments' differing perceptions of political cost-benefits.

The two states' demands in the dispute find their base on the hydrology of the river and therefore the arguments of Karnataka and Tamil Nadu will be described with reference to the river dispute literature while the Indian central government's actions in the dispute and the state's reactions to them will be seen primarily in the context of the Indian federal system. The two aspects of the framework will be integrated in order to achieve as complete an understanding as possible of the actions taken by the conflict's main actors.

Much of the theorising about river disputes has occurred in a legalistic framework, overlooking the political or economic factors intrinsic to river disputes. While it is useful to understand the legal principles and guidelines of international law in relation to river disputes, they offer little by way of explanation of dispute outcomes.

The Helsinki Rules, authored by the International Law Association (ILA) in 1966, provide the most important and widely accepted legal guidelines for use in settling river disputes. While the Helsinki Rules do not have the force of international law, they have been both applied and cited in international and interstate river disputes. B.R. Chauhan (1981: 46) states that sections of the Helsinki Rules have been applied in India, particularly by the Krishna and Narmada River disputes tribunals.
A number of important basic principles have been established by the Helsinki Rules. The central underlying principle is that "each basin state is entitled within its territory, to a reasonable and equitable share in the beneficial uses of the waters of an international drainage basin" (ILA, 1966: 9). The inherent difficulty with this principle lies in defining "equitable and reasonable."

A basin state is to "take into consideration the economic and social needs of its co-basin states for use of the waters" (ILA, 1966: 10). Unfortunately, however, this ideal is seldom achieved as each basin state tends to exaggerate its own needs, with the result that the claim of each will be so great that none of the other basin states' needs could possibly be satisfied.

The ILA (1966: 11) delineated some of the most important factors which should be used in determining the "equitable and reasonable" share of water due to each basin state. The eleven factors mentioned are:

a) The geography of the basin, including in particular the extent of the drainage area in the territory of each basin State;
b) the hydrology of the basin, including in particular the contribution of water by each basin State;
c) the climate affecting the basin;
d) the past utilisation of the waters of the basin, including in particular existing utilisation;
e) the economic and social needs of each basin State;
f) the population dependent on the waters of the basin in each basin State;
g) the comparative costs of alternative means of satisfying the economic and social needs of each basin State;
h) the availability of other resources;
i) the avoidance of unnecessary waste in the utilisation of waters of the basin;
j) the practicability of compensation to one or more of the co-basin States as a means of adjusting conflicts among uses; and
k) the degree to which the needs of a basin State may be satisfied, without causing substantial injury to a co-basin State.
The International Law Association goes on to say that "the weight to be given each factor is to be determined by its importance in comparison with that of other relevant factors" (ILA, 1966: 11). It also states that the above list of relevant factors should not be considered exhaustive.

This "factor-weighing" approach to resolving a river dispute may be a subject of controversy. Each basin state will emphasise only those factors which lend greatest support to its demands. Nonetheless, these are the types of variables which much be considered if river disputes are to be settled equitably.

In opposition to the Helsinki Rules' "equitable and reasonable apportionment" stands the principle of "prior appropriation" with its close relative, "prescriptive rights." While the former is more widely accepted in the international arena today, the latter is a traditional principle of water rights which has been applied in many parts of the world and is still in use intranationally (in the arid Western United States for example). "Prior appropriation" or "prior user's rights" simply means that the earliest user of water has the right to continued use of the water, with the first use having priority over later uses. "Prescriptive rights" refers to an inalienable right of utilisation of a resource or property (in this case river water) established by a prescribed number of years of uninterrupted, similar use. A common debate of a river dispute usually consists of one state claiming that it has prescriptive rights over the water and demanding that the principle of prior appropriation be applied in deciding its allocation. The other will argue that each basin state should be entitled to an "equitable and reasonable share" of the river's resources.
Establishing the quantum of water to be apportioned is only one of the basic issues which may arise during a river dispute. Others which B.R. Chauhan (1981: 143) points out are: the determination of an order of priority for water uses, the quality of water to be shared, the identification of factors for deciding respective shares, and the conservation of water for future use in the basin. The basic problem areas just mentioned may be resolved through the application of purely legal and technical considerations but political factors always complicate a dispute and may well relegate legal, technical, and even economic factors to the periphery of a dispute's negotiations.

Helen Ingram (1969) in her work, Patterns of Politics in Water Resources, discusses the Colorado River Basin in the United States. Her analysis hinges on the following statement that "the key attribute of water as a political issue is its basis in a locality..." and goes on to say that "localities in the same river basin or in adjacent basins where diversion is possible fiercely compete for water supply and development" (Ingram, 1969: 8). While the benefits of water projects may be seen in broad, national terms, in reality the benefits are "heaped" onto a locality (Ingram, 1969: 9).

Ingram does not define exactly what she means by "locality" but her discussion of it indicates that the term is a variable one. She says with reference to the United States that "water projects are geographically situated in a limited area, with few extending over more than a congressional district or over, at most, a state" (Ingram, 1969: 9). The total area of a "locality," then, varies with the basin's topographical features and with its overall level of development. LeMarquand (1977: 21) also supports the
notion of localised stakes in river disputes when he says that "water resources development is subject to intense regional political pressure and manipulation."

Water is equated with wealth or the potential for wealth in the area in which it may be used profitably. The sharing of water resources, then, is a highly emotive issue. "Water carries a guarantee of a prosperous future. Even when it would seem that an area has more water than it could possibly put to use, it is loath to part with or even to share its riches" (Ingram, 1969: 9). Ingram's discussion highlights the difficulties in reaching settlements of river disputes. With the perception of "our water equals our wealth," there is a strong tendency for one side to view another side's demands in terms of what it must give up. The river dispute may be seen in zero-sum terms even where the hydrology of the river and the demands for its water do not necessarily warrant such a view.

David G. LeMarquand (1977: 8-11) suggests that there are four basic "hydrologic-economic relations" possible between co-basin states. These relations arise from the geographical position of neighbouring states in the same river system, and the uses each of these states makes or wishes to make of the river. He identifies the hydrologic-economic relations as: public goods, common pool resources, integrated development opportunities, and upstream-downstream.

The first two relationships are most conducive to cooperation among basin states. A "public goods" relationship exists when all states have equal and unrestricted access to the resource, and when none of the states are able to exploit the resource to other users' detriment. States'
navigation rights on a river represent the closest approximation of a "public goods" relationship on a river. The second relationship, "common pool resources," occurs when two states share a river or lake as a boundary, but no upstream-downstream relationship is involved. In this instance, use of the common resource by one state may diminish the benefits available to the others but may also eventually harm its own interests. If, for example, all riparian states dispose of effluents in the river, all will suffer from the reduced quality of water. On the other hand, all will benefit from concerted action to reduce the effluents. In these first two types of relationships, should conflict arise, the incentives to reach agreement will be quite high as it is clear that all the basin states will benefit through cooperation.

Should conflict arise in the latter two relationships, the chances of reaching early settlement are much reduced, as one state is able to receive benefits from the resource without an agreement. In the category of "integrated development opportunities," two or more states are in an upstream-downstream relationship on a river. An upstream state may decide to build a dam which, while providing benefits to itself, also gives benefits to a downstream state in the form, perhaps, of flood control. The upstream state will want to reach an agreement with the downstream state by which the latter will pay for the benefits received from the upper riparian's actions. The main problem here lies in calculating an "equitable division of costs and benefits" between the state which undertakes the project and the state which profits as a result.

The final category also occurs where the basin states are in upstream-
downstream relationship. In this case, however, the upstream state uses a river for its sole profit. Its utilisation does not benefit the downstream state and may well be detrimental to the latter's interests if, for example, it makes consumptive use (such as for irrigation) of the water, diverts it, pollutes it excessively, or regulates the flow of water such that the downstream state's needs cannot be satisfied. In such cases the economic incentives to reach an agreement are extremely low because the upstream state receives maximum benefit by exploiting the river in accordance with only its own users' demands. South India's Cauvery dispute is in this last category of hydrologic-economic relationships.

As LeMarquand (1977: 10-11) points out, however, a nation may have other incentives or disincentives not directly related to its development of the river, to reach agreement with its neighbouring basin states. These would include worries about its international image should it not reach agreement, or loss of some measure of sovereignty if it does reach agreement. Two other factors which may complicate the basin states' riparian relationships are: (1) the river may be much more important to one state than to another; and (2) a nation may be involved in a number of international river disputes which could result in an agreement for one river dispute setting an unwanted precedent for the others. In the final analysis a nation's choice of action in a river dispute may well not be the "economically optimal" one because the most important considerations in a government's decision are political (LeMarquand, 1977: 20-21).

A discussion of Ingram and LeMarquand is included here because it helps explain a number of important factors regarding the Cauvery River
dispute. Through an application of their concepts we will see why there is a dispute at all, why the states have presented the types of arguments they have, and what hydrologic factors make this river dispute difficult to resolve. The Ingram and LeMarquand analyses of river disputes, however, do not help explain the Indian central government's actions in this dispute and leave out some of the essential political elements of the dispute, especially the central government's relations with the two disputants, its perceptions of the political and economic costs and benefits of acting to end the dispute, and the states' views on the political cost-benefits. In a federal polity the central government will have an effect on an interstate river dispute's outcome and therefore some conclusions must be reached as to what factors will either encourage or inhibit the centre's actions to end a conflict.

A survey of the literature on the Indian federal system affords overwhelming support for the notion that India's brand of federalism is "centrally-dominated" and even "over-centralised." Ashok Chanda wrote, for example, that India is "a unitary state in concept and operation" (1965: 124). A.G. Noorani (1972) echoed similar sentiments. Granville Austin (1966) also feels that India is a heavily centralised federation. Austin (1966: 217) pointed to A.H. Birch's (1955) definition of "co-operative federalism" as being applicable to the Indian case. Birch's (1955: 306) definition is:

the practice of administrative cooperation between general and regional governments, the partial dependence of the regional governments upon payments from the general government, and the fact that the general government, by the use of conditional grants, frequently promotes development in matters which are constitutionally assigned to the regions.

Numerous Indian political scientists have focused on the strength of the Indian central government and on Mrs. Gandhi's Congress party of the 1970s in particular (see for example, B. Dua (1979) and B.L. Maheshwari (1973)). It has been lamented that the state governments, constitutionally weak, have become so dependent upon Mrs. Gandhi's central regime that what little political autonomy Congress state leaders had has gradually eroded until the state governments are no more than pawns of Mrs. Gandhi's government.

There are some authors who feel that while India's federal system is not decentralised, the states have exercised greater power and autonomy vis-a-vis the centre than would seem possible given India's constitutional division of powers. Marcus Franda (1968), in his study of West Bengal and the "federalising process" in India, showed that the political process internal to West Bengal gave it and its ruling Congress party autonomy from the powerful central government led by Jawaharlal Nehru, despite its appearance as a "weak" (especially financially) state. Franda (1968: 179) characterised the operation of federalism in India as "a bargaining process between central and state leaders, one in which experiment, cooperation, persuasion and conciliation could describe both generally accepted norms and the usual procedural patterns of intergovernmental relations."

In a more recent work, Franda (1979: 226) argued that it was incorrect to view India's centre-state relations of the 1970s as centrally-dominated because Mrs. Gandhi's Congress was unable to maintain aggregated support from various important elements of Indian society. This weakness in the Congress organisation "forced her to attempt an authoritarian solution."
India's federal system has also been characterised as a bargaining process by W.H. Morris-Jones (1966: 143) who said "cooperative bargaining" between the centre and the states governs their "practical relations." Hardgrave (1980: 88), moreover, has noted that "the centre is heavily dependent on the states for the implementation of its policies." The centre's dependence on the states would seem to be conducive to political bargaining between central and state politicians over policy, especially in areas of special concern to the states.

Centre-state bargaining is an apt way to characterise the main elements of India's political system. For any given policy which depends for its success on implementation at the state level, some "deal" must be struck by the centre with the concerned state. State political leaders will assess the importance of the policy and its possible impact on their means of political support in the state before arriving at a decision.

The central government has strongly urged the states to take steps toward levying an effective agricultural income tax, but none have. Political leaders in the states rely to such a large extent directly on the support of agricultural, land-owning communities that they will not take any action which will alienate them. This indicates the importance of understanding the political makeup of the Indian states in order to understand the political system as a whole. A political leader's first priority is keeping himself in power and he does this through maintaining a network of loyal supporters. Central government directives are likely to be implemented at the state level to the extent they will not alienate the state leaders' major supporters.
The Indian federal system has to be seen in the light of central and state leaders' struggles to maintain supporters, who in turn maintain the leaders' power. A state political leader ultimately relies, not on New Delhi, but on his own state's people to keep himself at the helm. Therefore, the central government would have the greatest success in getting the states to implement policies which increase the state leaders' scope for patronage or at least do not harm the existing state patron-client system.

One should not conclude that the centre is so dependent on the states that the Indian federal system must be termed "decentralised." It is not. The states are heavily dependent on the centre financially. This puts the centre in a position where it may offer states rewards such as a steel mill for "good behaviour." The rewards are enticing to state political leaders who may use them to strengthen their bastions of support through patronage. In centre-state bargaining, then, there is no question as to which side has the greater resources with which to bargain.

Interstate river conflicts, however, represent a case of even more complicated bargaining as the centre must deal with two or more states simultaneously. Moreover, not only will the centre have to bargain with the states, the states compete with one another, and the state leaders may well be under pressure from groups within the state to support a particular stance. As a matter of general policy the central government is committed to ending all interstate disputes, but the centre's perceptions of the political costs and benefits involved may prevent it from acting effectively to resolve a dispute despite the economic costs. While the centre is
powerful constitutionally and financially, politically the central government needs the support of the states and the states' voters in general elections, and it is reluctant to alienate this support.

An appreciation of the centre's perspective on an interstate river dispute in terms of political decision-making may be had through Dean Mann's (1975) adaptation of T.J. Lowi's (1966) basic types of "politics" specifically to water policy. These are distributive, regulatory, and redistributive. Distributive politics in a river dispute involves coalition-building among local interests in support of a particular allocation of previously unutilised water in order to influence the centre to decide in their favour. The various "local interests" (the states) will be lobbying for different outcomes of the dispute thus leaving the central government in the uncomfortable position of choosing between the interests.

Regulatory politics usually involves sectoral interests which would see, for example, an environmental group pitted against polluting industries. In this case the central government may have to pass legislation to control the behaviour of one of the sectoral interests. As these interests may well cut across state boundaries, regulatory politics has little relevance to the interstate river dispute.

Redistributive politics "concerns reallocation of wealth and income or goods and services within a nation or control over resources between levels of government" (LeMarguand, 1977: 18). In interstate river disputes, however, "redistributive politics" may be used to describe a case where river water is already being utilised in a certain pattern, and there is a
demand made by one or more of the concerned states to have the existing pattern changed. The outcome of the dispute would see a zero-sum situation in which one basin state gains as a result of the other's losses. Again the central government is left with an unpleasant political choice. In this situation, the winners and losers are even more obvious than in the distributive case and the prospect may deter the centre from taking direct action to end the dispute even though it is within its power to do so.

Mann's discussion of distributive and redistributive politics highlights the central government's difficult role as a mediator and suggests some reasons why it has had problems in dealing with interstate river disputes. The centre faces a formidable task in trying to maximise support for itself in all the concerned states in a distributive dispute and it is next to impossible in the case of a redistributive conflict. Nonetheless, constitutionally and practically the onus is on the central government to encourage the resolution of river disputes. Given the political difficulties for the centre to settle river disputes to all the disputants' satisfaction, the central government will not be willing to act decisively to resolve most disputes quickly -- the Cauvery River dispute included.

In summary, LeMarquand's concept of hydrologic-economic relations will be used to help explain the positions of Karnataka and Tamil Nadu in the Cauvery River dispute, keeping in mind that their governments' perceptions of political factors will likely exacerbate the hydrologic-economic relationship of the two states. The central government's key
role in the dispute will be explained in terms of the extent of its ability and willingness to act in India's system of "cooperative federalism."

Of critical importance is the central government's perceptions of the political costs and benefits of acting decisively to end the dispute.

In the next chapter, the governmental institutions relevant to river disputes will be discussed. Additionally, an overview of a number of other river disputes in India is provided in order to place the Cauvery dispute in a broader, comparative context. In Chapter Three a brief discussion of the topographical features of the basin and of the historical Cauvery dispute is included, but the primary focus of the chapter is on the events of the contemporary dispute. Chapter Four contains an analysis of the current dispute with reference to the framework outlined in this chapter and the final chapter reflects on the theoretical issues implicit in the Cauvery River dispute.
1. Throughout the paper the term "interstate" dispute should be understood to mean "sub-national interstate" dispute.

2. Part or all of a basin state's territory is within the river's basin or watershed but the territory need not touch upon the river or its tributaries; this is opposed to a riparian state whose territory does touch upon the river or one of its tributaries. Therefore, all riparian states are basin states but not all basin states are riparian states. Karnataka and Tamil Nadu are both riparian states.
CHAPTER II

Governmental Institutions and an Overview of Selected River Disputes

During India's British period, irrigation was originally the sole concern of the Government of India. With the enactment of the Government of India Act (1919), irrigation came under control of the provinces but it was a "reserved" subject in that any project costing over five million rupees or affecting more than one province, required approval by the Secretary of State for India though the Government of India.

When the Government of India Act (1935) came into force, irrigation was transferred entirely to the provinces (Gulhati, 1972: 22-27). The centre made provision, however, that in the event of a dispute over an interstate river, the concerned governments could complain to the Governor-General. If the "issues involved" were of "sufficient importance to warrant such action [the Governor-General] shall appoint a Commission consisting of such persons having special knowledge and experience in irrigation, engineering, administration, finance, or law" and have that commission investigate the complaint (quoted in Gulhati, 1972: 28).

When India gained Independence in 1947, its constituent assembly made similar provisions for irrigation as existed under the 1935 Act.

Entry 17 of the State List of powers includes:

Water, that is to say water supplies, irrigation and canals, drainage and embankments, water storage and water power subject to the provisions of entry 56 of List I.

Under Entry 56 the centre has discretionary jurisdiction over interstate rivers:
Regulation and development of interstate rivers and river valleys to the extent to which such regulation and development under the control of the Union is declared by Parliament by law to be expedient and in the public interest.

In 1956 the central government enacted the River Boards Act which comes under the jurisdiction of Entry 56. This act gives an indication of the centre's intentions regarding the development of interstate rivers. India's interstate rivers are among the largest and most important of the subcontinent and include: the Ganges, Brahmaputra, Ravi, Sutlej, Narmada, Krishna, Godavari, and Cauvery. The centre's statement of intent was:

> It is hereby declared that it is expedient in the public interest that the Central Government should take under its control the regulation and development of inter-State rivers and river valleys...

Under this act, a river board may advise "the Governments interested in any matter concerning the regulation or development of any specified inter-State river...in relation to the coordination of their activities with a view to resolve conflicts among them." A river board, if so desired, could also prepare schemes, allocate costs of a scheme among the interested governments, and monitor the progress of such schemes. However, state governments have not thus far evinced any interest in setting up river boards and to date, not a single river board has been set up under the act.

There are, however, a number of river control boards which have been set up through central government executive resolutions and thus, are not statutory bodies. The control boards, unlike the river boards which were envisioned in the River Boards Act, have been set up merely to facilitate
the implementation of large interstate river projects. The concerned states and the central government decide a control board is necessary and then come to an agreement as to its composition and duties. These boards have been set up for such interstate projects as the Bhakra-Nangal Project (Punjab and Rajasthan), the Tungabhadra Project (Karnataka and Andhra Pradesh), and the Chambal Project (Madhya Pradesh and Rajasthan) (Jain, 1971: 14). The control boards, then, have been set up for single projects in a river basin while the river boards were to oversee development of entire river basins.

The Damodar Valley Corporation (DVC) was set up by statute in 1948. The DVC, modelled on the Tennessee Valley Authority in the United States, was to oversee the multi-purpose development of the Damodar River flowing through West Bengal and Bihar. It was to be a corporation consisting of representatives of the two states plus the centre but autonomous from both levels of government. In the years following its creation, however, the participating governments interfered more and more in the work of the DVC, severely hampering its development efforts. It is noteworthy that the "central government has chosen not to establish any more statutory river development corporations" (Jain, 1971: 17 and see also Franda, 1968: 62-128).

Article 262 of the Constitution gives the Indian Parliament the sole right to "provide for the adjudication" of a water dispute, thus excluding the courts.

Parliament may by law provide for the adjudication of any dispute or complaint with respect to the use, distribution or control of the waters of, or in, any inter-State river or river valley.
Following up on Article 262, the central legislature passed the Inter-State Water Disputes Act (1956) which provides:

When any request under section three is received from any State Government in respect of any water dispute and the Central Government is of the opinion that the water dispute cannot be settled by negotiations, the Central Government shall...constitute a Water Dispute Tribunal for the adjudication of the water dispute.

The effectiveness of the Inter-State Water Disputes Act was questioned by the Administrative Reforms Commission (ARC) which noted the lack of a time limit on negotiations for water disputes, thus allowing the central government to let negotiations drag on for years (ARC, 1969: 35). Although the ARC recommended imposing a limit of three years on negotiations, the centre has not amended the Act to provide for such a limit.

The National Planning Commission is an important central government body. It has a significant, if indirect, role to play in the Cauvery dispute because all major and medium irrigation projects must receive approval from the Commission. Irrigation projects are defined on a cost basis. "Medium" projects range from 250,000 rupees to 50 million rupees while "major" projects cost over 50 million rupees. Minor irrigation projects, costing less than 250,000 rupees, do not require the Planning Commission's approval.

In its consideration of a project, the Planning Commission will take technical, economic, and political factors into account. A scheme which is in some way part of an interstate dispute will have little chance of receiving approval from the Commission until the dispute is resolved. If a project is not approved, it will be excluded from the Indian government's Five Year Plans and will not be eligible to receive direct funding from
central coffers. A state government which has not obtained approval for its major and medium projects is to refrain from undertaking the same.

This does not mean, however, that an unapproved project will not receive funds from the central government. As the Administrative Reforms Commission pointed out, the states receive loans from the centre for non-Plan purposes. "The percentage of the loans received from the Centre to the capital disbursements of the States which was as high as seventy-seven percent the First Plan period shot up further to eighty-nine percent in the Third Plan period" (ARC, 1969: 12). With such a large amount of funding coming from the centre, the states' projects may be financed with the centre's money, whether they are included in the Plan or not.

The ARC also indicated that the states had become habituated to paying off their huge debts to the centre by taking out new loans from the centre. According to the ARC Study Team, the states have become indifferent as to whether the assistance they receive from the centre is in the form of loans or grants (ARC, 1969: 12-13). Following upon the recommendations made by the ARC in 1969, the central government reduced its power over allocation of assistance to the states by giving them block loans and grants as opposed to earmarked loans and grants. In this way the states have even greater control over money received from the centre (Jain, 1971: 13).

India's states are extremely dependent on the central government for the financing of irrigation projects. In the past, some major irrigation projects (Idikki in Kerala, Kosi in Bihar) have received one hundred percent loan assistance and it is general practice for water projects to receive
fifty to eighty percent of their required outlays from the centre (Jain, 1971: 12 and Alheritiere, 1978: 182). Thus, although irrigation is a state subject, the centre has played a "dominant role through its financial power" (Jain, 1971: 13).

The central government's Ministry of Irrigation is closely involved with settling river disputes. Cabinet Ministers of this department have acted as mediators in river disputes since Independence. They have held meetings with Chief Ministers and other officials at the state level, put forward suggestions at the meetings for resolving the disputes, set up investigative committees, and have had three disputes referred to tribunals. Dr. K.L. Rao and Jagjivan Ram were the Irrigation Ministers most closely involved with the Cauvery dispute.

At the state level in the Cauvery dispute the important ministries are the Public Works Departments (PWD) in Tamil Nadu and Karnataka. Both of these departments have wings which are responsible for formulating and executing major and medium irrigation schemes in their respective states. The ministers, officials and engineers of the Public Works Departments are the most familiar with the Cauvery dispute. Various documents giving the states' positions on the dispute are prepared by these two departments. PWD officials, usually irrigation engineers, put together information for the interstate discussions on the dispute and brief their Chief Ministers, both before and during negotiations. Since the British created the Public Works Department in the 1850s, Tamil Nadu's PWD has been involved with the development of and disputes over the Cauvery Basin for over one hundred years (Jain, 1971: 2).
An Overview of Selected River Disputes in India

India's post-Independence period has witnessed a large number of river disputes on the subcontinent. Many of these disputes arose with the major reorganisation of state boundaries in 1953, 1956, 1960, and 1966. In some cases agreements had existed between states prior to States Reorganisation, but the territorial changes also brought changes in the hydrologic-economic relations between states, thus nullifying the agreements and opening the way for disputes to arise. Disputes in India have generally been of two types: upstream-downstream and "integrated development" disputes where cost-benefit sharing has been at the focal point of debate. Some disputes, such as the Narmada, have comprised both upstream-downstream and cost-benefit sharing arguments.

Ravi-Beas Dispute

The Ravi-Beas River dispute between the states of Punjab and Haryana arose in 1966 with the partition of Punjab. The Beas is one of the east-flowing rivers of the Indus River system and flows for most of its length through Punjab. In 1955 at an interstate conference to discuss the allocation of Beas waters, the central government apportioned the river's waters among Rajasthan, Punjab, and Kashmir. When Punjab was split in 1966, the two new states argued about how the 1955 allocation should be divided. Haryana wanted over fifty percent of former Punjab's share, while Punjab wanted it all.

Negotiations at the ministerial level were entered into by the two states with the central government acting as mediator. When by the early 1970s no agreement could be reached, the centre ended negotiations and
instead appointed an expert committee to study the river, its current utilisation, and the patterns of irrigation in the two states. Upon the committee's presentation of its report in 1975, the central government divided the waters of the Beas in accordance with Section 78 of the Punjab Re-Organisation Act (1966). In 1976 Punjab refused to be bound by the centre's allocation, saying it was "inequitable" and that it had been "under pressure of duress to accept the central decision" (Jacob: 1976: 625).

Ironically, this dispute has been over partially unutilisable waters. In order for Punjab and Haryana to receive the waters of two other east-flowing rivers, the Ravi and the Sutlej, a major joint project must be undertaken by the two states and Rajasthan. This project envisions the construction of a large dam and a linking canal between the Beas and the Sutlej.

From 1976 onward, negotiations continued between Punjab and Haryana with the centre again acting as mediator. Finally, on December 31, 1981 the states came to an agreement, with Punjab receiving just over and Haryana just under fifty percent of the water. Now that the shares of the Beas have been determined, it is left for the states to undertake construction of the joint project (Jain, 1971: 54-56; Jacob, 1976: 624-25, Indian Express, 21 February, 1976, 31 January, 1982).

Narmada River Dispute

The Narmada River, eight hundred miles long, flows through the states of Madhya Pradesh, Maharashtra, and Gujarat from where it empties into the Arabian Sea. Apparently, it is the least developed of India's large rivers. In the late 1940s and early 1950s, the central government launched a number
of project studies in the Narmada River basin, so that integrated development could be undertaken there. The Central Water and Power Commission recommended in the mid-1950s that the Navagam Dam be built in Broach District of erstwhile Bombay State so that irrigation waters could be carried as far away as the Rann of Kutch. In 1960s, a study team appointed by the central Ministry for Power and Irrigation recommended that the height of the Navagam Dam be 320 feet.

In 1960 Bombay State became divided into Gujarat and Maharashtra and it was from this point that the dispute over the Narmada River arose. Even though Nehru himself laid the foundation stone of Navagam, the dam was to be subject of close to twenty years of intense controversy. The main problem was caused by Madhya Pradesh's plans to construct at least three dams on the upper reaches of the Narmada. The larger its dams, the smaller and less effective Navagam would become.

In November 1963 the Chief Ministers of Gujarat, Madhya Pradesh, and Maharashtra met with the Union Minister for Power and Irrigation to discuss the Narmada River. An agreement was reached under which the Navagam Dam would be 425 feet high (all costs and benefits to accrue to Gujarat) and two dams would be built in Madhya Pradesh with costs and benefits to be shared among the three states. This agreement, however, was not subsequently ratified by Madhya Pradesh.

As no agreement could be reached, the centre appointed the Narmada Water Resources Development Committee under the chairmanship of Dr. A.N. Khosla to investigate primarily how to maximise utilisation of the Narmada in a manner acceptable to both Gujarat and Madhya Pradesh. The committee's
report was presented in September 1965 and recommended that thirteen projects be taken up in Madhya Pradesh and Gujarat. The committee suggested that Navagam Dam, the only project in Gujarat, be constructed to a height of 500 feet, for with this height irrigation and/or hydro-electric benefits could be extended to Rajasthan and Maharashtra in addition to Gujarat and Madhya Pradesh. Gujarat was the only state to accept the committee's report.

For three years, from 1966 until 1969, the Chief Ministers of the concerned states met with the Union Minister for Power and Irrigation, Dr. K.L. Rao. These fruitless meetings led to Gujarat's request that the central government refer the dispute to a tribunal under the Inter-State Water Disputes Act (1956). In October 1969, the central government set up a tribunal to adjudicate the dispute despite Madhya Pradesh's filing a writ petition in the Delhi High Court to prevent the centre from setting up a tribunal. The petition was dismissed.

The tribunal handed down a preliminary decision in 1972, but Madhya Pradesh and Rajasthan challenged the decision and through the Supreme Court of India got a stay of the tribunal's proceedings. At about this time Prime Minister Gandhi received a number of requests from the four Chief Ministers (Gujarat, Madhya Pradesh, Maharashtra, and Rajasthan) "to decide on the allocation of waters between Madhya Pradesh and Gujarat and the height of the Navagam Dam" (Jacob, 1976: 622). The Prime Minister consulted with ministers and officials of the concerned states in a series of meetings but she could not reach a decision "in view of rival political pressures."

Throughout 1974 and early 1975 the four Chief Ministers carried on
negotiations. They were able to reach agreement for eight projects in March 1975 and Madhya Pradesh and Rajasthan allowed the stay of proceedings for the tribunal to be removed. Because of the partial agreement, a number of issues were removed from the purview of the tribunal. Nonetheless, it still had to reach a decision on the height of the Navagam Dam and the sharing of Narmada waters between Madhya Pradesh and Gujarat. The tribunal finally reached a decision in 1978 under which Navagam's height was restricted to 455 feet.

Thus, directly because of the river dispute, development projects in the Narmada Basin were held up for eighteen years and billions of gallons of water were allowed to go to waste in the Arabian Sea. An unhappy postscript is that as of April 1982 the Navagam Dam was still far from completion because of the states' bickering over cost-sharing (Indian Express, 1 April 1982; Jain, 1971: 37-41; Jacob, 1976: 621-22).

Krishna and Godavari Disputes

The Krishna and Godavari river systems are closely interlinked. The Krishna system just south of the Godavari Basin includes the states of Maharashtra, Karnataka, and Andhra Pradesh. The Godavari system lies in Maharashtra, Karnataka, Andhra Pradesh, Madhya Pradesh, and Orissa. Given the geographical proximity of the two river basins, there have been plans to divert Krishna waters to the lower reaches of the Godavari.

In 1951, under the auspices of the Planning Commission, a draft agreement was reached between the states of Bombay, Hyderabad, Madras, Mysore, and Madhya Pradesh on sharing the waters of the Krishna and Godavari Rivers. This agreement, which excluded the state of Orissa, was ratified by all the
states except Mysore but lost any validity it might have had with the creation of Andhra Pradesh in 1953 and States Reorganisation in 1956 after which the state of Hyderabad ceased to exist. The Central Water and Power Commission (CW & PC), using the 1951 draft agreement as its starting point, re-allocated the waters of the two rivers based on the territorial changes brought about by States Reorganisation. At a meeting in 1960 none of the basin states accepted the new allocation drawn up by the Commission.

At the 1960 meeting the Union Minister for Irrigation and Power suggested that an expert committee for data collection and assessment of the Krishna-Godavari diversion scheme be set up under the chairmanship of Sri N.D. Gulhati who was India's leading representative at the Indus River negotiations with Pakistan. While the Gulhati Commission was able to prepare a report, it was unable to collect much of the pertinent data because none of the states had completed adequate technical investigations of the rivers. The Union Ministry decided that final allocations of water to the states could not be made before 1976 and in the interim, the CW & PC would collect and analyse the required data.

The Union Irrigation Minister, H.M. Ibrahim, made interim allocations of water to the five states based on the Gulhati Commission Report in 1961 so that they could go ahead with at least some of their projects in the two river basins. The states, however, began to accuse one another of making excessive withdrawals of water and numerous meetings were held with the Irrigation Minister to deal with these disputes. Realising the futility of these negotiations, and upon the request of Mysore, Maharashtra, and Andhra Pradesh, the central government referred both disputes to adjudication
by tribunal in April 1969. Mysore and Maharashtra had both requested a tribunal as early as 1962, and Andhra Pradesh requested one in 1968.

The central government constituted two tribunals, with the same personnel however, to adjudicate the Krishna and Godavari disputes. It was decided that the tribunal would consider the Krishna dispute first. The main issue before the tribunal was how to distribute Krishna waters equitably among the basin states. In 1972, the tribunal made an initial decision but Karnataka questioned its validity and the tribunal undertook further hearings.

On May 31, 1976 the tribunal made its final decision. Of a total of 2060 thousand million cubic feet (TMC) available for allocation, Karnataka would receive 700 TMC, Maharashtra 560, and Andhra Pradesh the remaining 800 TMC, but even should flows exceed 2060 TMC, it was stipulated that Andhra Pradesh "shall not acquire any right whatsoever to use nor be deemed to have been allocated water in excess of 800 TMC." It was also decided that Krishna water could be diverted by Andhra Pradesh to its drought-prone areas for irrigation purposes only. The tribunal provided for a review of its decision in the year 2000 and also included provision that "the decision...may be altered, amended, or modified by agreement between the parties or by parliamentary legislation" (Jacob, 1976: 618-19).

It was only after the tribunal had rendered a decision on the Krishna River dispute that it could turn its attention to the Godavari River. This meant a seven year wait for the tribunal's consideration of the Godavari dispute. In the interim, therefore, the Union Minister for Irrigation and Agriculture, Jagjivan Ram, made an effort to have some of the
important issues of the dispute solved through negotiations with the concerned states, but not with more than two at a time. In this way, piece-meal understandings were reached until, on December 19, 1975, the states found themselves in agreement for the allocation of 2300 of the 3000 TMC available for allocation. In this way, plans for various projects in the basin could be given approval even before the tribunal began its deliberations. The tribunal, headed by Judge Bachawat, reached a final decision on the remaining allocation of Godavari waters in 1979 over twenty-five years after the dispute began (Jacob, 1976: 609-21; Jain, 1971: 29-37; P.V. Rao, 1981: 20, Indian Express, July-December 1975).

The four disputes discussed in this chapter are instructive in that they were all eventually solved through initiatives taken by the central government. In three instances -- Narmada, Krishna, and Godavari disputes -- the centre referred the conflicts to tribunals, but only after years of negotiations. All four conflicts involved large, mostly untapped rivers and were all examples of upstream-downstream disputes although in the Ravi-Beas and Narmada disputes, integrated development opportunities were also present.

The economic costs of allowing these disputes to continue were extremely high. In the Narmada Basin, the irrigation benefits from the Navagam Dam would extend to thousands of acres from southern Gujarat and Maharashtra to the Rann of Kutch and southern Rajasthan. The average annual discharge from the Krishna and Godavari basins is 5000 TMC (compared with the Cauvery's 740 TMC), but much of that was allowed to flow into the ocean. The Ravi-Beas dispute prevented Punjab and Haryana from working together on important river-linking projects in the Indus River system which is so
important for the agricultural output of India's most productive state, Punjab.

All of the disputes were hydrologically difficult for the centre to solve but three of them -- Narmada, Krishna, and Godavari -- were especially difficult to solve because of the politics of the conflicts. The Godavari dispute, for example, involved five Congress states, the Narmada had four, and the Krishna included three Congress states. In these disputes the economic costs to India of the centre's not acting decisively to end the conflicts were high but the political costs would also have been high. The central government took the path of lowest political costs by referring the disputes to tribunals. In this way Mrs. Gandhi could escape having to make unpopular decisions in the disputes and avoid the risk of alienating some or all of the states involved. At the same time she could assure the states that their disputes would be solved equitably, if not with dispatch. The decisions to refer the disputes to tribunals came only after years of negotiations in all three disputes, nine years for the Narmada dispute and eighteen years for the Krishna and Godavari disputes, and numerous demands from some of the states for tribunals. Interestingly, the decisions coincided with a time when Mrs. Gandhi would have felt her power base in India to be particularly vulnerable -- 1969, the year of the first Congress Party split.

The Ravi-Beas dispute was settled through negotiations after some fifteen years of discussion. In this case the centre was willing to force a solution on the two states during the Emergency -- a time when the political costs of acting decisively were low while the economic benefits
remained high. Certainly it was easier for the centre to resolve this dispute, involving only two states, in contrast to the other three disputes. Punjab, however, rejected the imposed solution in 1976 and with the new Janata government in power at the centre in 1977, the latter would not try to enforce a solution which had been imposed on Punjab during the Emergency. Because the economic costs of allowing this dispute to go on were high -- not only were Punjab and Haryana unable to capitalise on the benefits of new irrigation works, so too were Rajasthan and Kashmir -- the centre continued to make serious efforts to find a solution and the two states finally accepted a compromise in 1981.

These river disputes all have one thing in common: the economic costs of allowing them to continue were astronomical. Political factors, however, made it difficult for the centre to find adequate solutions of the conflict, thereby resulting in three of the disputes being referred to tribunals, a method of conflict resolution the central government generally avoids.

River disputes in India are longlasting and have debilitating effects on the development of the regions in which the rivers flow. This in turn hampers the development efforts of the nation as a whole. Since Independence India has suffered from well over a dozen river disputes. Others have included: the Musakhand Dam Project (Uttar Pradesh and Bihar), the Mahi River (Gujarat and Rajasthan), the Tungabhadra River (Karnataka and Andhra Pradesh), the Kanhar River (Bihar, Madhya Pradesh, and UP), the Palar River (Mysore and Madras), the Barak River (Assam and Manipur), the Subaranekha River (Orissa and Bihar) and the Jamni Dam Project (Madhya Pradesh and UP).
Fortunately, a number of the river or river project disputes have ultimately resulted in co-ordinated development efforts by the states. These include the Tungabhadra, Ravi-Beas, Musakhand Dam, and Jamni Dam disputes. In two instances states have cooperated on river development projects without first engaging in disputes. These are the Bhakra-Nangal Project for development of the Sutlej River and the Chambal Dam Project. In order to facilitate completion of the Chambal Dam, Rajasthan transferred permanently a section of its territory to Madhya Pradesh so that the project would lie completely in that state (Jain, 1971: 19-20).
1. The Ministry of Irrigation has gone through a number of name changes over the years -- from Power and Irrigation to Agriculture and Irrigation and now it is Irrigation alone.
CHAPTER III

The Cauvery Basin and the Dispute Past and Present

The Cauvery River's source lies in the Brahmigiri Hills of Karnataka's Coorg District. From there the river winds its way through the Eastern Ghats, the plains of Karnataka and Tamil Nadu, and broadens into a large delta just east of the city of Tiruchirapalli. There, in Tanjavur District, the Cauvery divides into numerous channels which flow into the Bay of Bengal, some five hundred miles southeast of its source in the Western Ghats.

This river is the third largest in South India, after the Krishna and Godavari, and is the largest and most important river of Tamil Nadu. Cauvery is not a perennial river; it is virtually dry in the districts of Tiruchirapalli (Trichy) and Tanjavur for a few months every year prior to the southwest monsoon. The Cauvery Basin is 33,646 square miles in area. Of that, 13,181 (39 percent) square miles and 19,359 (57.5 percent) square miles lie in Karnataka and Tamil Nadu respectively. Another three percent of the basin is in Kerala. Important tributaries of the Cauvery are the Harangi, Hemavathi, Kabini, and Suvarnavathi Rivers in Karnataka and the Amaravathi, Bhavani, and Noyil Rivers in Tamil Nadu. The Cauvery Basin covers about 38.5 percent of the total area of Tamil Nadu and 19 percent of Karnataka. The catchment in Karnataka contributes approximately 52 percent of Cauvery's waters and that in Tamil Nadu, 30 percent, while the catchment in Kerala contributes 18 percent (Tamil Nadu Public Works Department (TN PWD), 1979).
The annual average volume of flow in the Cauvery has been estimated by the Cauvery Fact-Finding Committee (1972: 78) to be 740 thousand million cubic feet (TMC). The Committee estimated that Karnataka's utilisation of Cauvery waters was 177 TMC, Tamil Nadu's 566 TMC, and Kerala's only 5 TMC. These utilisation figures actually add up to slightly more than the annual average discharge of the river. The main reason for this discrepancy is that the states' utilisation figures represent withdrawal figures. When, for example, 10 TMC is diverted from the river into an irrigation system in a particular area, less than 10 TMC will actually be used. This is because of "drainage from excessive percolation during irrigation, surface run-off during irrigation, drainage from canal seepage, leakage from canal structures, ... [and] discharges at the lower ends of canals" (Jacob, 1976: 615). This unused water from the command area will re-enter the main river system and be available for users lower down. Thus, withdrawals are always greater than utilisation and the lesser the efficiency of the irrigation system, the greater the withdrawals from the river must be in order to irrigate the crops effectively.

Despite the differences between withdrawals and actual utilisation, the fact that withdrawals from the Cauvery River add up to more than its average volume of flow, indicates that only a small percentage of Cauvery water flows unused into the sea every year. In fact, the Cauvery Fact-Finding Committee (1972: 78) estimated that there was an annual wastage of about 50 TMC, or seven percent of the river's average yearly volume of flow.

Waters of the Cauvery River have been well-utilised in comparison with many other large rivers of India. In the Tanjavur Delta in particular,
irrigation of rice crops on a large scale has been carried out for hundreds of years -- at least since the Chola Dynasty of the ninth to twelfth centuries A.D. The Grand Anicut, the first major diversion structure across the Cauvery River, was originally built by the Cholas in about the eleventh century (Stein, 1980: 24). It is said, however, that as early as the first century A.D. a "system of embankments" was built along "the floodways and canals of the Tanjavur Delta to carry the [river's] water safely to more distant fields" (Hart, 1956: 16).

In the 1830s British engineers in Madras Presidency began to undertake modernisation projects to improve the irrigation system in the lower reaches of the Cauvery Basin. In 1830 they repaired and heightened the Grand Anicut and in 1836 they built the Lower Coleroon Anicut across the Coleroon River which acts as a flood channel for the Cauvery Delta. In 1839 the Upper Anicut was built near Trichy "to divert low supplies in the river into the southern branch which was the feeder channel to the delta" (Cauvery Fact-Finding Committee (CFFC), 1972: 25).

In Karnataka, however, the irrigation potential of the Cauvery River has been only marginally exploited. This is partly because it is much more difficult and expensive to develop irrigation systems in non-deltaic areas. Flat deltaic lands have many natural channels which are easily used for irrigation purposes, while irrigation channels must all be built in the higher reaches of a basin. Until the States' Re-organisation of 1956, Mysore was a relatively small state which simply had inadequate resources to develop its ayacut (irrigable land) on a large scale. Since then, however, the state has been slowly working to build up its irrigated area
in the Cauvery Basin.

The major dams in the basin are Mettur with a live storage capacity\(^3\) of 93.5 TMC, near Salem in Tamil Nadu and Krishnarajasagar (KRS) with a capacity of 45 TMC, about twelve miles from Mysore in Karnataka. Both of these dams became fully operational in the early 1930s. Karnataka has three other major dam-reservoir projects in various stages of completion: Hemavathi in Hassan District, 34 TMC, Kabini in Mysore District, 19.2 TMC, and Harangi in Coorg, 6.5 TMC. In Tamil Nadu the Lower Bhavani dam in Coimbatore District has a live storage capacity of 32 TMC and also in Coimbatore District there is a dam across the Amaravathi River which holds back 5 TMC. All the dams in the Cauvery Basin are designed for irrigation purposes, although Mettur and KRS are also used for power generation.

Mettur is the most important structure in the Cauvery Basin for Tamil Nadu's irrigation system as it provides a regulated water-supply to the delta some 150 miles away, and without which stabilised irrigation would be an impossibility. Mettur is not used for irrigating the Tanjavur Delta on a year-round basis. It is operated in conjunction with the cropping season which means that it first releases water to the delta in mid-June if the southwest monsoon is active over Karnataka, and stops releasing water in about January. When there is a deficient southwest monsoon the water level in Mettur's reservoir will be low and its first releases may have to be delayed. This causes great uncertainty for cultivators in the Tanjavur Delta who usually start planting their first crop of paddy in June. If Mettur releases are delayed, the cropping season will have to be delayed, but if the latter is postponed by too much, the first crop of paddy will
be damaged by the northeast monsoon which begins in early October. The cultivators, then, must gamble on exactly when the first releases from Mettur will arrive in the delta and on whether they will be enough to sustain the first crop of paddy.

On a statewise basis the irrigated area with double-cropping in the Cauvery Basin as determined by the Cauvery Fact-Finding Committee in its Additional Report (1973: 8-15) is: in Kerala, 53,400 acres; in Karnataka, 683,000 acres; and in Tamil Nadu, 28.2 million acres. Of Tamil Nadu's total approximately 1.45 million acres of irrigated land are in the Cauvery Delta (see table next page).

The main crop grown in the irrigated areas of the Cauvery Basin is rice. In the Cauvery Delta virtually all land is under paddy. As mentioned above, the start of the paddy cropping season in the delta is dependent on the commencement of the southwest monsoon over Karnataka. In some areas of the delta two short term rice crops are grown. The first one, kuruvai, is of 105 days duration and is grown from June to October. Thaladi, the second crop, is of 165 days duration with a cropping season which extends from October to February. The area of double cropping in the Cauvery Delta is about 400,000 acres although this figure varies with the intensity of the southwest monsoon. Most of the delta, however, is sowed with one, longer duration crop of 180 days known as samba. Samba is planted in mid-July and harvested in January. Other important crops grown in Tamil Nadu's portion of the Cauvery Basin are sugarcane and cotton.

In Karnataka paddy is generally grown from June to December-January. The cropping season there is also very dependent on the southwest monsoon.
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Traditionally, only a single crop of rice is grown in the basin in Karnataka. With the introduction in recent years of certain high-yielding varieties of rice which have shorter cropping periods, second crops of either paddy or semi-dry food crops are also planted depending on the availability of water. Other crops grown in Karnataka are ragi, jowar, pulses, groundnuts, and sugarcane (CFFC, 1972: 44-45).

Cauvery Dispute Past

The dispute over the Cauvery River began in the late 1880s when the Dewan of the princely state of Mysore, K. Seshadri Iyer, decided that major improvements should be made to the irrigation works in the Cauvery Basin. This decision alarmed engineers in Madras Presidency who felt that the increased exploitation of Cauvery water was proposed by Mysore would harm the existing irrigation system vital for rice cultivation in the Cauvery Delta in Tanjavur District.

By the 1880s Madras Presidency had yet to establish its sovereignty over the rivers flowing through it, including the Cauvery. The major landholders controlled distribution of river waters and refused to give up that control to the state. As Michael (1979: 56-57) states,

Efforts by government engineers to gain control over water distribution within the Cauvery Delta...had been ineffective. By litigating and lobbying, rich and influential landholders had been able to defend their "immemorial rights" to use excessive quantities of water for inundation irrigation....Madras engineers had seen that upstream technological innovation in Mysore would eventually...diminish volumes of water required for irrigation in the Cauvery Delta. They therefore sought to impose restrictions or limitations on water development activities in Mysore.

A conference of the Mysore State and Madras Presidency governments was held in May 1890 "to discuss pending disputes over the restoration of..."
minor irrigation works on interstate streams" (Michael, 1979: 69). The talks broke down, however, over the question of riparian rights to interstate river water in the Cauvery Basin. As the Government of India indicated its preference that the two sides come to some agreement through negotiations further discussions were held in May 1891. In February 1892 an agreement was signed by Madras and Mysore. It was entitled "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." The 1892 Agreement's Schedule A named the many tributaries of the Cauvery River which were to be under its purview. With the numerous restrictions placed on Mysore, the agreement represented a victory for the lower riparian state, Madras (Michael, 1979: 74-76 and Basheer Hussain, 1972: 5).

A conflict arose again in 1910 when Madras Presidency received plans from Mysore for a dam, Krishnarajasagar (KRS), to be constructed across the Cauvery River near the city of Mysore. As in the 1880s, Madras engineers and Tanjavur landholders felt that Mysore's proposal to increase withdrawals of Cauvery waters would harm the established, albeit wasteful, pattern of irrigation in Tanjavur Delta. Additionally, Madras had put forward a project proposal for Mettur Dam but was told by the Government of India that it would not approve the project until the dispute with Mysore was settled. Madras then sought arbitration "under the terms of the 1892 agreement."

In 1913 the Government of India appointed Sir Henry Griffin, a High Court judge, as arbitrator of the Cauvery dispute. He heard evidence for both sides and in May 1914 awarded Mysore the right to go ahead, unimpeded, with its plans to build KRS (Basheer Hussain, 1972: 7).
The Tanjavur landholders immediately met to discuss what action they could take against the arbitrator's award and decided to launch their own appeal. The Madras Presidency itself appealed to the Government of India to disallow the arbitration award, but in 1916 Griffin's decision was upheld. As a result the Madras Government appealed to the Secretary of State for India, Austen Chamberlain, who set up a committee to look into the appeal. The committee was supplied with briefs prepared by both the Madras Public Works Department and by the "Tanjore Mirasidars Association" on behalf of the Tanjavur landholders (Michael, 1979: 193-94).

The committee ruled in 1917 that it was within the Secretary of State's jurisdiction to overrule the Government of India's decision if necessary. The Government of India reacted by sending a letter to the new Secretary of State, Edwin Montagu, re-affirming its decision to uphold the arbitration award of 1914: "...we feel strongly that any attempt to modify it [the 1914 award] would constitute a grave injustice to a Native State..." (quoted in Michael, 1979: 209). In November 1919, however, the Secretary of State struck down the award and ordered that negotiations between Madras and Mysore be re-opened.

A meeting was held in April 1920 and a technical agreement was reached in 1921, but it was not until 1924 that a final agreement was signed. Under this agreement Mysore was allowed to build KRS to half the size of Mettur but would have to abide by strict rules of operation for the dam and for any further irrigation works in the Cauvery Basin (Michael, 1979: 251-74).

The 1924 Agreement was to be in effect for fifty years, at the end
of which it would be "open to reconsideration in the light of experience gained and of an examination 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" (1924 Agreement: 10.xi). The operative part of this agreement was Clause 10 (see appendix 1), the paragraphs of which referred to: the limitations on the extension of irrigation in the Cauvery Basin, the type of project for which plans must be forwarded to the other state, the capacity and regulation of new reservoirs, and the action to be taken in the event of a dispute.

From 1924 until the late 1960s, no new disputes arose over the Cauvery River. Nonetheless, in the 1950s Madras and Mysore did begin to raise complaints against one another's projects in the Cauvery Basin. In the early 1950s, for example, Madras undertook two canal projects on the Cauvery River (Kattalai and Pullambadi) to which Mysore objected, claiming they were in contravention of the "limitation of irrigation" clauses of the 1924 Agreement. Mysore also said the projects would use surplus waters in the river which were to be available for apportionment when the agreement came up for renewal in 1974. The Planning Commission approved these schemes but said the projects were not to prejudice the distribution of surplus waters in 1974. Madras agreed to abide by the Commission's verdict (Jain, 1971: 47).

Madras' complaints against Mysore regarding the latter's projects related to the furnishing of schemes' details. Madras stated that Mysore was not providing details of its projects on the Cauvery River and tributaries
as required under the 1924 Agreement. Mysore replied that it was not furnishing plans of its schemes because Madras had not given Mysore the particulars of its Kattalai and Pullambadi canal projects on the Cauvery River (Jain, 1971: 48).

In the Second and Third Five Year Plans (1956-1966) Mysore forwarded plans to the National Planning Commission in Delhi for the construction of three major dam projects on the Kabini, Hemavathi, and Harangi tributaries of the Cauvery River. The Kabini project alone was approved by the Planning Commission but the Mysore government later expanded it so that instead of irrigating 30,150 acres it would irrigate 247,000 acres (CFFC, 1972: 37). Madras objected to all of these projects, claiming them to be in contravention of the 1924 Agreement. Mysore argued that the dams were in accordance with the provisions of the agreement. Kabini was an "offset reservoir" to Tamil Nadu's Bhavani project. Hemavathi, at a capacity of 34 TMC, was much smaller than the 45 TMC allowed under Clause 10.vii, and the Harangi Project was outside the scope of the agreement as the tributary was not included in the 1892 Agreement's schedule of rivers because it was not then in Mysore's territory. Despite the Planning Commission's refusal to sanction these projects, including the expanded Kabini dam, the Mysore government went ahead with them.

Madras continued to object vociferously to the projects and from 1967 onward, a number of meetings between the technical officers of the two states and the central government were held. The main subject of these early meetings was Karnataka's Hemavathi and Harangi dams. The two dams are both higher up on the Cauvery River than KRS and as the latter is the
direct source of most of Mettur's water, Tamil Nadu's engineers feared that the higher dams would hold back water from KRS which in turn would keep water from Mettur. 5 It was in the late 1960s, then, that Madras' complaints against Mysore's projects and Mysore's refusal to heed them escalated into the current dispute. 6

Cauvery Dispute Present

By early 1970 it had become clear to Tamil Nadu that neither Karnataka nor the central government would respond to its complaints about Karnataka's irrigation projects. Consequently, Tamil Nadu requested that the centre set up a tribunal to adjudicate the dispute under the Inter-State Water Disputes Act. This event marked the beginning of the Cauvery River dispute in its contemporary form.

The central government did not comply with Tamil Nadu's demand for a tribunal but rather the Minister for Irrigation, Dr. K.L. Rao, called a meeting for October 27, 1970 with the Chief Ministers of Tamil Nadu (M.K. Karunanidhi), Karnataka (Virendra Patil), and Kerala (E.M.S. Namboodiripad). According to sources in Tamil Nadu, at the end of this meeting, Rao announced that further negotiations at the Chief Ministers' level would not help to resolve the dispute. He told the meeting he would inform the central Cabinet of his opinion (TN PWD, 1982: no page no.).

Tamil Nadu again asked the centre to refer the dispute to a tribunal. In December 1970, Karunanidhi wrote a letter to the Prime Minister, Mrs. Gandhi, in which he stated that since negotiations were at an impasse, the centre should appoint a tribunal to end the dispute (TN Gov't., 1971: 34). Apparently, the Government of India replied that nothing would be done until
after the Lok Sabha elections were held in March 1971. In those elections Mrs. Gandhi's Congress won a sweeping victory, capturing 352 of 518 seats with forty-four percent of the popular vote.

Karunanidhi sent two more reminders about a tribunal to the Prime Minister in 1971 but received no reply. Consequently, in August 1971 Tamil Nadu filed a suit in the Supreme Court of India in which it named the Governments of India and Mysore as respondents. Tamil Nadu's suit stated "that a dispute has arisen and exists between the State of Tamil Nadu and the State of Mysore and that the Union of India is under a present duty to constitute a Tribunal under Central Act 33 of 1956 and refer the dispute to that Tribunal" (quoted in Karnataka Water Resources Development Organization (WRDO), 1976: 13).

The second part of Tamil Nadu's petition to the Supreme Court asked that "pending disposal of this suit and till the disposal of the reference by the Tribunal that the State of Mysore be restrained by an injunction from proceeding in any manner with or executing the following projects." The projects against which Tamil Nadu wanted a court injunction were Kabini, Hemavathi, and Suvarnavathi Reservoir projects and "other reservoirs across tributaries of the river Cauvery not mentioned in Schedule 'A' to the 1892 Agreement," the most important of which was the Harangi reservoir project (quoted in WRDO, 1976: 13-14).

At the same time that the government of Tamil Nadu filed its suit in the Supreme Court, the landowners of Tanjavur District represented by Murasoli Maran who was Karunanidhi's son-in-law, and Mannai Narayanasami filed a separate case. While the Supreme Court did accept both cases for
trial, it did not rule in favour of Tamil Nadu. The Supreme Court ruling, handed down on October 25, 1971, stated there were insufficient grounds for it to issue an injunction against Mysore because it was impossible to prove that the construction of various projects in the upper reaches of the Cauvery Basin was causing Tamil Nadu to incur losses (Namasivayam, 1975: 30).

Following Tamil Nadu's setback, Mrs. Gandhi paid a visit to the state in the third week of May 1972. During her tour, she reportedly asked Karunanidhi to withdraw Tamil Nadu's Supreme Court suit so that the Cauvery dispute could be solved quickly and amicably through negotiations. She apparently told the Chief Minister that the central government would do everything possible to find an early resolution of the dispute (Interviews, P.U. Shanmugam and S. Pasha: 22 April 1982).

From May 29 to 31, 1972 Dr. K.L. Rao chaired a series of discussions with the Chief Ministers of Karnataka, Kerala and Tamil Nadu in New Delhi. Five state cabinet ministers, the chief engineers of the respective states, and other top officials also attended the meetings. Two of the Chief Ministers had just gained power for the first time in recent state assembly elections: C. Achutha Menon (United Front) of Kerala in 1971 and D. Devaraj Urs (Congress) of Karnataka in 1972. S.P. Namasivayam (1975: 31), retired chief engineer of Tamil Nadu, notes that this change in personnel created a genial atmosphere prior to, and during the May 1972 talks. There was a positive feeling that some agreement would come out of this meeting.

When the meetings ended on May 31, a preliminary agreement had, indeed, been reached. The appointment of a tribunal at this stage was
rejected. In the agreement signed by K.L. Rao and the Chief Ministers it stated: "A serious attempt should be made to resolve by negotiations the Cauvery dispute between the States as early as possible." Prior to this meeting the centre had aimed at reaching an interim agreement between the states "to be valid until 1974 when the earlier agreement of 1924 would have come up for review after fifty years as provided in the agreement but now, as 1974 is near, this attempt has been given up in favour of finding an overall approach to solve the problem amicably amongst the several states" (Irrigation Ministry, 1972).

The preliminary agreement of May 1972 also provided that:

2.2 The Centre may appoint a Fact-Finding Committee...to collect all the connected data pertaining to Cauvery waters, its utilisation and irrigation practices as well as projects existing, under construction, and proposed in the Cauvery Basin. The Committee will examine the adequacy of present supplies or excessive use of water for irrigation purposes. The Committee is only to collect the data and not make any recommendations.

2.3 Making use of the data, discussions will be held between the Chief Ministers of the three States to arrive at an agreed allocation of waters for the respective States.

3 The Union Government will assist in arriving at such a settlement in six months, and in the meanwhile no State will take any steps to make the solution of the problem difficult either by impounding or by utilising water of the Cauvery beyond what it is at present.

One of the most important outcomes of the 1972 agreement was the centre's rejection of the 1924 Agreement as a basis for negotiations. Since then Tamil Nadu's leaders have continued to claim publicly that any new accord governing the Cauvery Basin should be based on the 1924 Agreement, but it is clear that neither Karnataka nor the central government support this notion. K.L. Rao's early rejection of the 1924 Agreement
was likely based on the reasonable assumption that while it was possible for the British to force the princely state of Mysore to abide by the agreement's clauses, it would not be possible for the central government to enforce such a one-sided agreement on Karnataka.

In June 1972 the central government appointed the Cauvery Fact-Finding Committee (CFFC) with P.R. Ahuja (of the CW & PC), Jatindra Singh (retired Chief Engineer, Punjab), J.S. Patel (an agricultural expert), and B.D. Bal (retired Judge, Maharashtra High Court). After visiting each of the states three times and collecting the requisite data from them, the Committee tabled its report in December 1972.

Meanwhile in Tamil Nadu an all-party meeting to discuss the Cauvery dispute was held in June. It was decided there that the Tamil Nadu government should withdraw its case before the Supreme Court. In its motion to have the case withdrawn, the Madras government stated that it intended to withdraw its suit in order "to facilitate a settlement being arrived at between the States as early as possible." The Supreme Court allowed the case to be withdrawn without prejudice to its being re-opened at some future date (WRDO, 1976: 14).

K.L. Rao convened the Chief Ministers for another meeting in April 1973. The main purpose of these discussions was to consider the CFFC's report and determine if the states all agreed on the data given therein. The most important of the data were the figures on water resources in the Cauvery Basin. The chief engineers of the states agreed with the CFFC that:
a) the volume of flow up to Mettur was 508 TMC (50% dependability) and 451 TMC (75% dependability).

b) flow up to Anaikattu (at river's mouth) was 740 TMC (50% dependability) and 670 TMC (75% dependability).

It seemed, then, that an important hurdle had been successfully crossed -- the states agreed on the issue of availability of water resources in the Cauvery Basin (Namasivayam, 1975: 61-62).

The Chief Ministers decided at this meeting that the CFFC should be renewed for a further three months so that it could collect further data that were missed previously and also double-check the accuracy of the information provided by the states in 1972. The Additional Report was completed by August 1973 and two months later a meeting was held to discuss it, although the report provided few changes from the original and little new information.

At the October 1973 talks little time was spent discussing the CFFC's Additional Report. Instead attention was turned to the difficult question of how to apportion the water of the Cauvery River among the basin states. Apparently, Rao met with the Chief Ministers individually to ascertain their perceptions of water requirements for their states.

According to informants in Tamil Nadu, from this meeting onward, the type of question asked of Tamil Nadu's representatives was, "How much water will you give up? To what extent will you reduce your utilisation of Cauvery water?" (Interviews, Namasivayam, Shanmugam: 5 and 22 April 1982). The general impression among politicians and officials in Tamil Nadu, whether correct or not, was that Rao and subsequent central Irrigation Ministers would be interested in the other states' requirements of
Cauvery water but only in Tamil Nadu's forfeiture of water. That the centre would ask Tamil Nadu to reduce its consumption of Cauvery water is not surprising because the state is, by far, the largest user of the river. Karnataka's and Kerala's development opportunities in their portions of the basin will be realised only by denying Tamil Nadu part of the river's flow that it has been accustomed to receiving in the past.

This basic problem in the dispute highlights and explains the two states' legal arguments. Tamil Nadu's leaders argue on the basis of the prescriptive rights over Cauvery waters they say the landholders in Tanjavur have acquired through irrigating their rice crops in the delta with river water "since time immemorial." For Tamil Nadu to claim, however, that it has prescriptive rights over water to irrigate the current ayacut of 2.8 million acres is a major exaggeration since at the turn of this century, only 1.6 million acres were under irrigation in what is now Tamil Nadu's part of the Cauvery Basin.

Karnataka's efforts to increase its share of Cauvery water are based on the principle of "equitable apportionment" which has become widely accepted in legal circles since its inclusion in the Helsinki Rules of 1966. The Helsinki Rules stated that "each basin state is entitled...to a reasonable and equitable share in the beneficial uses of the waters of an international drainage basin." Karnataka says that since it contributes over fifty percent of Cauvery waters but has been denied their use by Tamil Nadu, in any future allocation of Cauvery waters Karnataka should be permitted to use fifty percent -- its "equitable share."

As the October discussions did not result in any agreement on the
allocation of Cauvery water, Rao decided to appoint C.C. Patel, Additional Secretary in the Union Irrigation Ministry, to undertake a study of the possibility of economising on existing water usages in the Cauvery Basin (WRDO, 1976: 16). C.C. Patel and his committee toured the Cauvery Basin and had meetings with the engineers of the concerned states at the end of 1973. A Chief Ministers' meeting was held in Madras on June 27, 1974, to discuss Patel's preliminary findings. His final report, "Possible Savings in the Use of Cauvery Waters," was presented at the Chief Ministers' meeting held in Delhi on November 8 and 9, 1974.

Patel found that Tamil Nadu could reduce its utilisation of Cauvery water by 100 TMC, which is about twenty percent of its current utilisation, if it were to improve and modernise its irrigation system, line the irrigation channel between the Upper and Grand Anicuts, and intensify the use of groundwater in the delta. He said that additional unquantified savings could be had through continuous assessment of requirements below Mettur and monitoring of releases to ensure efficient tie-up between rainfall, water requirements, and releases from reservoirs, ...storage in tributaries downstream of Mettur, ...and integrated operation of reservoirs (Irrigation Ministry, C.C. Patel, 1974).

He also reported that Karnataka could save about 25 TMC by modernising its irrigation systems, diversifying crops, and integrating the operation of its reservoirs.

During these talks, the question of how much water Tamil Nadu could save received much attention. On the advice of his engineers, Karunanidhi informed Jagjivan Ram, the new Union Minister for Agriculture and Irrigation,
that Tamil Nadu would be able to save on the order of 60 to 80 TMC. Apparently, however, Ram was insistent on the figure of 100 TMC and finally extracted a statement from Karunanidhi to the effect that Tamil Nadu would save a total of 100 TMC in fifteen years. According to Namasivayam (Interview: 3 April 1982), the Tamil Nadu Chief Minister's commitment was a great error and amounted to a "condemnation of posterity."

Tamil Nadu's engineers present at this meeting were horrified that Karunanidhi could agree to a 100 TMC savings, and did the best they could to rectify the situation. They informed Karunanidhi that the Tamil Nadu government could agree to Karnataka's reducing the flow of water to Mettur from KRS and Kabini dams by 100 TMC, but that Tamil Nadu should not be expected to reduce its utilisation of Cauvery water by 100 TMC. The main reason for this is that a 100 TMC reduction at Mettur Dam does not represent an actual 100 TMC loss of water to Tamil Nadu, while a 100 TMC reduction in utilisation does.

At present Tamil Nadu's irrigation requirements include three fillings of Mettur Reservoir per year, or about 275 TMC (Interviews, Balakrishnan, Vilayuthan: 23 and 29 April 1982). The yearly average volume of flow into the reservoir ("inflow") at Mettur is on the order of 380 TMC or more, so that having Mettur inflows reduced by 100 TMC would have no effect on Tamil Nadu's pattern of irrigation, and the state's PWD has said that 260 TMC would be an acceptable yearly minimum inflow at Mettur.

The effect on Karnataka would be that in years of good rainfall, it would have an extra 100 TMC or even more for its new projects in the
Cauvery Basin but in mediocre and drought years, a projection that Mettur will only get, for example, 300 TMC would leave Karnataka with only 40 TMC out of the agreed reduction while Tamil Nadu's needs would be fully met. Moreover, if Tamil Nadu were to modernise its irrigation system after the reduction at Mettur, it would still have enough water to increase its irrigated acreage in the basin.

If Tamil Nadu were to reduce its utilisation by 100 TMC, it would have to undertake a modernisation project first in order to accomplish the agreed reduction and would have little scope for increasing its irrigated cropped area in the future. While Tamil Nadu's "utilisation reduction" was being accomplished, Karnataka would hold back more and more water from Mettur so that its lower riparian neighbour would be forced to continue its modernisation programme just in order to maintain its irrigated area at current levels.

Another point of contention Tamil Nadu raised at the November 1974 meeting concerned the Government of India's new state utilisation figures for the Cauvery Basin as proposed by the Patel Committee. The new figures showed Tamil Nadu's utilisation at 489 TMC, while the CFFC had found that the state's utilisation was 566 TMC. The reason for this difference is that the latter figure is based on the flow data for thirty-eight years, 1934 to 1971 inclusive, while the former is based on five years ending in 1972. Tamil Nadu argues that the data for thirty-eight years is a much better indicator of actual utilisation than that for five years.

Neither Karnataka nor the central government has accepted Tamil Nadu's claim and at subsequent meetings 489 TMC has continued to be given as Tamil
Nadu's utilisation figure. The main point Karnataka raises against Tamil Nadu's insistence on the use of data based on thirty-eight years is that irrigation practices and cropping techniques have changed over the thirty-eight year period and as a result, Tamil Nadu's withdrawals of Cauvery waters for its irrigation system have actually been decreasing over the years even though, as the CFFC Additional Report (1973: 12-13) indicates, the cropped area has increased.

Another significant technical argument originally raised at the November 1974 meeting was over the distribution of 125 TMC of water which, in the opinion of the Patel Committee, would be available at the end of fifteen years of economisation in the Cauvery Basin. The allocation of this 125 TMC was to be as follows: to Karnataka 87 TMC, to Kerala 34 TMC, and to Tamil Nadu 4 TMC. None of the states have accepted these distribution figures.

It is unacceptable to Tamil Nadu that it be expected to reduce its utilisation by 100 TMC through expensive modernisation schemes but then receive only 4 of the 125 TMC to be saved by itself and Karnataka. Given the Patel Committee's utilisation figure of 489 TMC for Tamil Nadu, after fifteen years the state could expect to utilise 393 TMC (489-100+4). Tamil Nadu's engineers claim this represents a shortfall of 70 TMC below the state's minimum requirement of 460 TMC (TN PWD (Vijayaraghavan), 1978: Par. 10). Despite the centre's offer to lend financial aid for the delta modernisation project, Tamil Nadu's incentive to modernise its irrigation system is minimised by the vision of its accrued savings going to benefit Kerala and Karnataka rather than its own agriculturalists.
Karnataka, however, also objects to the centre's proposed scheme of savings and redistribution. At the end of fifteen years its maximum utilisation would be on the order of 239 TMC (Interview, Janardhan: 11 May 1982). Devaraj Urs stated in early 1975 that if Karnataka were to receive only 87 TMC, it should be able to utilise it immediately (Indian Express, (IE), 9 February 1975: 5). He also complained that without a penalty clause in the agreement Tamil Nadu could not be trusted to carry out the savings within the prescribed time, if at all (IE, 11 February 1975: 1).

On a less fractious note, in the draft agreement presented by Irrigation Minister Ram to the states at this meeting, provisions for a Cauvery Valley Authority (CVA) were included. This was probably the only area of agreement among the states at this round of talks. They all agreed in principle that a Cauvery Valley Authority should be constituted to oversee any agreement they might reach. None of the states, however, signed Jagjivan Ram's draft agreement because it also included provisions for the redistribution of Cauvery water.

This November 1974 meeting marked an important turning point in the Cauvery River dispute. Prior to this meeting, while the Karnataka and Tamil Nadu governments did have their disagreements, a certain underlying spirit of cooperation prevailed, particularly among the technical officers of the two states (Interviews, Namasivayam and Magdum: 5 April 1982, 12 May 1982). At the November meeting, however, the mood changed and rancorous debate ensued until the next meeting held on February 15, 1975. A likely reason for this is that substantive issues of the dispute which
clearly demarcated the outcome of the conflict in terms of water allocation were discussed at the November meeting. The states' leaders realised they were faced with a zero-sum situation in that Karnataka's gains in allocation of water could only be had through Tamil Nadu's losses and similarly, if Tamil Nadu were to maintain its current utilisation, Karnataka would be unable to bring its new irrigation projects into full operation.

In the month prior to the February meeting, various politicians in Karnataka expressed hostility toward the centre's draft agreement of 1974. H.N. Nanjegowda, Karnataka's Minister for Major Irrigation, declared that it "would do injustice to Karnataka a thousand times more than the 1924 Agreement. It would be disastrous to the State if the Draft was accepted" (IE, 6 January 1975: 1). The Karnataka Public Works Minister, H.M. Channabasappa criticised the draft agreement for being "unscientific and unrealistic which, if accepted, would create chaos and confusion" (IE, 11 February 1975: 1). Just three days prior to the February meeting, Devaraj Urs was understood to have assured opposition party leaders in Karnataka that he would not sign a Cauvery agreement at the upcoming meeting (IE, 13 February 1975: 1).

Not surprisingly, then, the February 15 and 16 negotiations did not bring the states any closer to agreement and probably left them farther apart than ever before. According to Karnataka the central government modified its 1974 draft agreement somewhat by allowing Karnataka to go ahead with projects requiring a maximum of 85 TMC. Karnataka's and Kerala's presentations, however, of alternative draft agreements complicated the negotiations at this meeting. The talks went on for about fifteen hours over
the two days of meetings but the discussions again became mired in the
issue of the amount of water to be saved by the states and then redis-
tributed for "further development of irrigation" (IE, 17 February 1975:
1).

Two days after these inconclusive talks, Tamil Nadu's Chief Minister,
Karunanidhi, convened an all-party meeting in Madras to discuss Tamil
Nadu's next step in the Cauvery dispute. The party leaders unanimously
decided that the state government should again ask the Government of India
to refer the dispute to a tribunal. Subsequently, Tamil Nadu's DMK
(Dravida Munnetra Kalakam-Dravidian Progressive Federation) Members of
Parliament met with the Prime Minister Mrs. Gandhi and the President,
Faqruddin Ali Ahmed, to press Tamil Nadu's request for a tribunal. The
centre ignored this request, adhering to its policy that the dispute
would be best resolved through negotiations.

Spokesmen for Karnataka reacted to Tamil Nadu's renewed demand for
a tribunal by refuting the notion that a tribunal was necessary.

Chennabasappa said to newsmen,

I do not rule out the possibility of further talks on the
basis of other norms which can be fixed. There are three
or four other ways to settle the issue and its reference
to a tribunal should be the last as it is contentious.
Karnataka is not, however, afraid of a tribunal (IE, 21
February 1975: 5).

The growing problem at the talks, beginning with those held in
November 1974, was that the states could not bring themselves to compro-
mise on the issue which is at the crux of the dispute -- the reallocation
of Cauvery waters. The dispute is further complicated by the lack of
agreement over how much water is available for allocation. This becomes
evident when we look at the technical debates on surplus flow and groundwater in the Cauvery Basin.

Tamil Nadu contends that groundwater should not even be considered in a dispute which is about allocating a river's volume of flow (surface flow, surface water) and that its share of surface water should not be compromised by taking groundwater into account. Tamil Nadu supports its case by pointing to the verdict handed down by the Krishna River dispute tribunal which allocated Krishna River water among Karnataka, Maharashtra, and Andhra Pradesh without taking into consideration the existence of groundwater in any of the three states because of a lack of data: "the underground water resources of the States concerned will not be regarded as alternative means of satisfying their needs and will not be taken into account for the purpose of equitable apportionment of the waters of the river Krishna" (Krishna Tribunal quoted in Narmada Water Disputes Tribunal Report, 1978, v.1: 18).

Groundwater has, however, been included in the negotiations at least partly because the Cauvery Fact-Finding Committee (1972: 58-60) discussed groundwater in its Report. Additionally, the CFFC pointed out that the United Nations Development Programme investigation of groundwater in the Cauvery Delta showed that "the geological settings are quite favourable for the development of groundwater" (quoted in CFFC, 1972: 59) and that Tamil Nadu was undertaking a project to sink 7000 filter points and 1000 tubewells. This gave Karnataka leverage to its argument that subsurface water resources of the Cauvery Basin should be included as an issue in the dispute. C.C. Patel gave added weight to
groundwater as a topic for consideration in the overall allocation of Cauvery Basin waters when he "conservatively" estimated that Tamil Nadu could reduce its use of river water by 30 TMC if it were to make more intensive use of the groundwater available to it in the delta.

Tamil Nadu argues that if it were to make more intensive use of groundwater, the quantity of which is unknown, it would not make much difference to its requirement of Cauvery River water. Tamil Nadu's engineers claim that groundwater is only helpful for starting nurseries of the short term kuruvai paddy crop before the first releases of Cauvery water from Mettur Dam begin in late June. This use of groundwater, however, will not decrease the delta's requirements for surface flows because the Cauvery's first flows in the delta from Mettur would go to replenishing the depleted groundwater supply (Interview, S. Ganesan: 24 April 1982). It is difficult to know to what extent this assertion is true, for it seems there is no consensus among engineers as to the exact relationship between ground and surface water.

In recent years Tamil Nadu's position has found support from the Narmada water disputes tribunal (v.l, 1978: 118) which stated:

For equitable apportionment of the waters of an inter-State river system, the underground water resource of a State is a relevant factor. The reason is that underground water may furnish alternative means for satisfying the State's irrigation needs. But the difficulty is that groundwater flow cannot be accurately estimated from the technical point of view....In view of this difficulty, we are of the opinion that groundwater should be omitted altogether in the consideration of legal problems of the river basin.
There is a disagreement, moreover, as to the actual amount of groundwater in the delta. Tamil Nadu claims that not only is the amount insignificant but that up to twenty kilometers inland from the ocean it is brackish and not useable for irrigation purposes (Interview, Venkateswaran: 30 April 1982). Karnataka, whose own groundwater resources are apparently minimal, argues the opposite. It supports its case by citing the CFFC Report (1972) and the United Nations Development Programme (UNDP) study. Karnataka contends that each and every year, Tamil Nadu wastes 150 TMC of groundwater by allowing it to seep into the ocean. According to Karnataka the UNDP Report indicated that 128 TMC of groundwater "can be withdrawn from within the delta area for beneficial use, year by year" (quoted in Karnataka Irrigation Department, 1978: Pars. 36-37).

On the question of surplus water in the Cauvery Basin, the states are equally far apart. Tamil Nadu's assertion is that the Cauvery River is already "overburdened with existing commitments" and that very little if any Cauvery waters are wasted. Furthermore, the waters that do flow out to sea from the delta are not utilisable.

Karnataka, on the other hand, claims there is a large surplus of Cauvery water going to waste because Tamil Nadu does not practice scientific water management. In its 1978 note on the Cauvery dispute, Karnataka's Irrigation Department indicated that an unacceptably high yearly average of 340 TMC of wasted surface and groundwater were flowing out to sea. It backed up its statement with the following quotation from the UNDP Report:
The reasonably close matching outflow (as indicated by average figures) obtained...for Cauvery and Vennar sub-basins justifies the conclusion that the surface outflow from the project water balance area is about 10 TMM [350 TMC], when including the outflow from the Coleroon River.

Karnataka charges that in Tamil Nadu the irrigation system in the delta is highly inefficient with much escapage of water occurring at the system's tailend regulators. It also charges that the duty in much of Tamil Nadu's portion of the Cauvery Basin is far too low. Karnataka suggests that through modernisation of the irrigation system in Tamil Nadu, the construction of a number of small storage reservoirs, integrating the usage of surface flow and groundwater, and the "development of irrigation on the lines of agreed optimum cropping patterns," Tamil Nadu will be able to avoid wastage and economise on its use of Cauvery water, thereby allowing Karnataka to use its rightful share of the river (Karnataka Irrigation Department, 1978: Par. 41).

As mentioned earlier, Tamil Nadu claims there is no surplus of Cauvery water. Part of its claim is based on the following: the Cauvery River is fed with two monsoons, the reliable summer southwest monsoon (May-August) and the sporadic autumn northeast monsoon (October-December). Most of the Cauvery's flow arises from the earlier monsoon but the so-called wastage occurs to a greater extent during the northeast monsoon. Part of the reason for this relates to the sudden heavy downpours Tamil Nadu experiences during this monsoon, making it impossible to release waters from Mettur Reservoir in perfect conjunction with the needs of the delta. It takes about three days for water to reach the delta from Mettur. Therefore if it rains heavily in the delta during that period, the water
released from Mettur will have to be allowed to flow into the sea or risk damaging the crops.

During the northeast monsoon it is possible for much water to pass into the ocean as flood flows as there is a definite limit as to how much water may sit on a paddy field without damaging the crop. Karnataka suggests that the flood flows could be saved through the use of tanks and other storages in the lowerbasin and delta, but Tamil Nadu replies that the extreme flatness of the land in that area makes it next to impossible to build effective storages. Moreover, such storages could be constructed only at the expense of extremely valuable agricultural land. Engineers in Tamil Nadu also say that if storages were to be constructed in the delta they could well exacerbate an already existing flood problem during the northeast monsoon. "If a fresh flood hits in a few days after we have stored an earlier receding flood, the problem of drainage will assume painfully immense proportions" (Namasivayam, 1975: 69).

Tamil Nadu contends that the water loss through the delta's tailend regulators looks much worse than it actually is. When drainage due to heavy rains becomes a problem, water is allowed to escape through the regulators. However, because the lie of the land is so flat, water tends to stagnate rather than flow into the ocean, often giving the appearance of an abundance of water below the regulators, thereby leading to the conclusion that water losses are high. Despite Tamil Nadu's claims, it must be remembered that many of the regulators are extremely old and in need of repair. As a result there are leakages through these regulators with a resulting, unquantified, wastage of irrigation water.
Karnataka's point of view is that the condition of the tailend regulators is an indicator of the overall inefficiency of Tamil Nadu's irrigation system, particularly in the Tanjavur Delta. It claims that Tamil Nadu uses more water than is its rightful share because it has allowed the duty in the various command areas to remain too low. It also says that the current system of irrigation in the delta with field-to-field movement of water, many unlined and unsloped channels, and the use of the same channels for irrigation and drainage necessitates Tamil Nadu's heavy withdrawals from the Cauvery River but leads to the inefficient use of the water and resulting waste.

Tamil Nadu refutes all of Karnataka's statements regarding inefficient and unscientific water management practices in the delta. While Tamil Nadu admits there is room for improvement, it claims that even in its current form, the delta's is the most efficient irrigation system in all of South Asia (Namasivayam, 1975: 14). Tamil Nadu's engineers point out that Karnataka itself has an inefficient irrigation system and that the wastage around KRS is higher than anywhere in the Tanjavur Delta (Namasivayam, 1975: 23).

Since the early 1950s, Tamil Nadu's engineers have planned to modernise the state's irrigation system, especially in the Cauvery Delta. In 1970 the World Bank agreed to fund a "delta irrigation and drainage rehabilitation project" costing 490 million rupees. This project would have included construction of regulated outlets for fields, regulators for channels, and cement-lining of some channels. The World Bank was optimistic about this project, saying it would increase the area of
double-cropping and generally increase crop yields with the following results:

At full development the annual gross value of production from the project area is expected to reach 577 million rupees, nearly double the present production. After deducting production costs, the net value of agricultural production would reach 319 million rupees, compared to 191 million rupees without the project.

This World Bank project was, however, not undertaken. Apparently, the central government informed the World Bank that as the proposed project area was included in an interstate river dispute it could not sanction it. According to one source in Tamil Nadu, the centre was willing to allow the project to go ahead until Karnataka had it roadblocked through the intervention of a Secretary in the Irrigation Ministry (Interview, Namasivayam: 3 April 1982).

Karnataka probably did object to this project because it entailed a large increase in the area available for double-cropping paddy in the delta. With increased double-cropping, Tamil Nadu would require more water from Mettur Reservoir in mid-June because the first crop of paddy in the delta is heavily reliant on flows from Mettur.

The issue of early summer flows to Mettur Reservoir is an important one for Karnataka because it threatens the state's sovereignty over the river in its own territory. If Karnataka must guarantee that Tamil Nadu will receive a certain amount of water at Mettur Reservoir by a certain date, this means that Karnataka is obliged to operate its own reservoirs, especially KRS and Kabini, in such a way as to meet Tamil Nadu's needs first. Thus, my informants in Karnataka angrily denounced the idea of
guaranteeing Tamil Nadu anything, saying it amounted to Tamil Nadu having paramountcy over Karnataka's projects.

Towards the end of 1981, it was reported that the Tamil Nadu government was seeking another loan from the World Bank to fund a Cauvery modernisation scheme that would cost on the order of 3660 million rupees (IE, 1 November 1981). With the Cauvery River still under dispute, however, it is unlikely that this project will be sanctioned by the central government for a World Bank loan.

It is ironic that Tamil Nadu is unable to receive funding for projects in the Cauvery Delta because of the dispute. As we saw earlier, one of the main issues deals with the quantum of water each state should save and how this water should be re-allocated thereafter. Tamil Nadu refuses to reduce its current utilisation by 100 TMC, partly because there are no guarantees as to the exact amount of water that can be saved through modernisation works. Therefore, if the various modernisation projects envisioned for the delta were nearing completion, the debate about savings would be a less contentious one as it would be clear how much water Tamil Nadu could realistically save.

Another one of Karnataka's suggestions for improvement in Tamil Nadu's irrigation system is that the cropping pattern in the Tanjavur Delta be changed to coincide better with the pattern of rainfall in Tamil Nadu. The delta's first rice crop, kuruvai, planted in June, is: raised almost entirely on irrigation-supplied water, the source of which is the southwest monsoon over Karnataka and Kerala. Karnataka says that it is highly inefficient to grow a crop which must depend entirely on irrigation
and not on rainfall. Karnataka suggests that Tamil Nadu grow a dry crop during this season so that it (Karnataka) may impound more Cauvery water. Karnataka cites the Report of the National Commission on Agriculture (1976) in support of its arguments:

14.1.2 ...Not only in rainfed farming but even under irrigated conditions, one will have to plan for the most economic and efficient use of water to derive maximum possible benefit from rainfall, reducing dependence on irrigation so that the advantage of availability of water could be extended to as large an area as possible.

14.7.15...There is a case for restricting paddy to one season only in the southern states when rainfall amounts are in higher ranges in one or two months at best, and utilising irrigation water for growing various crops other than paddy.

Tamil Nadu rebuts Karnataka's arguments with the following points. First, while it may be more efficient to grow paddy during the northeast monsoon alone, this monsoon is notoriously inconsistent and this could mean disastrous rice shortages in years of subnormal rainfall. Second, much of the land within the delta is highly prone to waterlogging during the cropping season and is therefore only suited to paddy (Interview, Venkateswaran: 30 April 1982).

Third, people in Tamil Nadu are so accustomed to eating rice, it would be difficult to habituate them to consuming other types of foodgrains and therefore rice production must be kept at high levels to meet the increasing demand that comes with a rapidly expanding population (Interview, Manavalan: 3 April 1982). Fourth, the agriculturalists in Tanjavur have been growing paddy for hundreds of years and it will be
difficult to convince them that they must now grow other grains and pulses on lands that were previously devoted exclusively to paddy, especially since it is one of the more profitable crops they can grow (Interview, Padmanabha Rao: 14 May 1982).

These, then, are the types of technical points which became the focus of debate between Tamil Nadu and Karnataka in the 1970s. Unfortunately, the majority of these issues have not had adequate or, perhaps, impartial investigation which leaves much room for conflicting interpretations by the technical officers of the two states.

Karnataka's and Tamil Nadu's total opposition to one another's contentions has made the centre's role as the mediator in this dispute difficult to play. Since the meeting of November 1974, the states have been mutually hostile and it is not surprising that after the states' strong criticisms of one another and of the centre's draft agreements presented in late 1974 and early 1975, the centre did not call another meeting for eighteen months.

While part of the reason for this gap may be found in the states' hostility, a larger part lies in the political situation in India during this time. During the first months of 1975, Mrs. Gandhi found herself under political attack from a number of quarters. In the north, the senior Gandhian leader, Jayaprakash Narayan (known as JP) had launched a movement against Congress governments in Gujarat and Bihar, and he finally opposed the central government itself.

By mid-1975, this anti-Congress JP Movement gave the appearance of becoming a major threat to Mrs. Gandhi's power. Additionally, a 1971
court case laying charges of election malpractices against Mrs. Gandhi was ruled upon. The case had been launched by Raj Narain, who had lost to Mrs. Gandhi in the 1971 Lok Sabha election.

The High Court of Allahabad found Mrs. Gandhi guilty on two minor charges but under Indian law this meant that she would lose her seat in Parliament and thereby be forced to resign the Prime Ministership. An appeal was made to the Supreme Court but on June 24 it did not grant an unconditional stay against the High Court's judgement. Instead it ruled that Mrs. Gandhi could retain her post as Prime Minister but could not participate in any Parliamentary proceedings. She called the Emergency on June 26.

In South India, the political situation was much less volatile. With Mrs. Gandhi's attention focussed on her own political problems, however, the central government paid little attention to the Cauvery River dispute. Karunanidhi's repeated requests to have the dispute referred to a tribunal were ignored. By 1975, however, an important change had occurred in Mrs. Gandhi's relationship with Karunanidhi and his DMK government.

In 1969 when the Congress split into the Congress (R) and Congress (O), Mrs. Gandhi lost her majority in Parliament and had to rely for support on the DMK Members of Parliament. When her Congress (R) won a major election victory in 1971 Mrs. Gandhi no longer needed the DMK support but their relationship remained friendly. At the end of 1972, however, M.G. Ramachandran, a popular Tamil film star, was expelled from the DMK and he formed his own party, the All-India Anna DMK (AIADMK). One of MGR's
first tactics as leader of the major opposition party in Tamil Nadu was to accuse Karunanidhi of encouraging ministerial corruption.

Karunanidhi took the threat from MGR so seriously that in 1974 he began to lend enthusiastic support to JP who was dedicated to the removal of corruption in government. This move, basically to discredit MGR, alienated Mrs. Gandhi and gave MGR an opportunity to woo the Prime Minister with his anti-JP "save democracy front." During the Emergency Karunanidhi, still eager to discredit MGR, who was now calling for President's Rule in Tamil Nadu, continued to antagonise Mrs. Gandhi with his pronouncements against the Emergency and with his refusal to censor the press in Tamil Nadu. It was no surprise that Tamil Nadu was placed under President's Rule on January 31, 1976. Rule of Tamil Nadu was taken over by the Governor with two newly appointed advisors, P.K. Dave and R.V. Subramaniam on February 1.

While Mrs. Gandhi's attention had been focussed on the immediate challenge to her authority in the months preceding the Emergency, once Emergency was imposed she and her lieutenants could look to the other challenges which faced their country. One of these challenges was inter-state disputes. During the Emergency the central government made pronouncements urging the states to solve all disputes with their neighbours. In November 1975, for example, Mrs. Gandhi and Jagjivan Ram, still the Minister for Agriculture and Irrigation, made a joint appeal that all river water and border disputes be ended within six months (IE, 11 November 1975: 1). Two months later, Ram again stressed the importance of settling river disputes, declaring they were "coming in the way
of getting World Bank assistance for irrigation projects in the country" (IE, 25 January 1976: 1).

A number of agreements were reached to end water disputes in India while the Emergency was in force. On December 20, 1975, the Indian Express announced, "Five States Reach Accord on Sharing of Godavari Waters" (see Chapter 2). In his statement to the press, Jagjivan Ram expressed a wish that the Godavari accord "would be a precursor to many agreements" for interstate water disputes (IE, 20 December 1975: 1). At the end of December 1975, Assam and Manipur settled a dispute over the Barak River. On February 21, 1976, it was further announced, prematurely, that the ten year old Ravi-Beas dispute between Punjab and Haryana had ended. A pact was signed in April 1976 to bring Krishna waters from Andhra Pradesh to the city of Madras to enhance its drinking water supply.

The Cauvery dispute also received heightened attention during the Emergency. In March 1976, Ram stated that he intended to resume negotiations on the Cauvery dispute and was looking into obtaining World Bank aid for major projects in the Cauvery Basin (IE, 6 March 1976: 1). Ram also indicated that the centre was still in favour of setting up a Cauvery Valley Authority (IE, 19 January 1976: 7).

Tamil Nadu's PWD Minister, P.U. Shanmugan, said that his government was interested in having an "amicable settlement" reached as early as possible. He also said, however, that his government wanted assurances from Karnataka for enough Cauvery water so that Tamil Nadu could irrigate 2.5 million acres of land including areas of double-cropping in the delta (IE, 19 December 1975: 7). MPs representing Tamil Nadu held a meeting
with the centre's Finance Minister, C. Subramaniam (also from Tamil Nadu), in June 1976 and the consensus developed at that meeting was that the centre should take the initiative to see the dispute settled (IE, 9 June 1976: 1).

Karnataka's Chief Minister, Devaraj Urs, reiterated his state's position that the Cauvery dispute should be solved through "mutual discussions" and not by having it referred to a tribunal (IE, 7 December 1975: 1). Politicians from Karnataka also expressed the opinion that all the "old" agreements regarding the Cauvery River system, including the key 1924 Agreement, had expired and that any new agreement would have to "safeguard the interests of Karnataka" (IE, 16 April 1976).

On August 25 and 26, 1976, a meeting to discuss the Cauvery dispute was chaired in New Delhi by Jagjivan Ram and attended by the Chief Ministers of Karnataka and Kerala and the Governor of Tamil Nadu. Jagjivan Ram stated in the Lok Sabha on August 27:

> The discussions were frank. Each state expressed its viewpoints which were appreciated by the others in a spirit of mutual accommodation. The talks led to an understanding which can be regarded as a landmark towards settlement of some of the most complex issues (quoted in Karnataka Irrigation Department, 1978).

The meeting resulted in a draft understanding which appeared to be a breakthrough in the Cauvery dispute. Jagjivan Ram was confident that the "understanding" had been accepted by the states and spoke of it as being the "basis for cooperation and further development of Cauvery waters in the most efficient manner." The draft understanding, however, was left unsigned. The Governor of Tamil Nadu, Mohanlal Sukhadia, felt that such a document required the signature of a duly elected representative
of the state. As the understanding was left unsigned by Tamil Nadu, Karnataka and Kerala also refused to endorse it.

The understanding (see appendix 2) left two important subject areas for committees to study: Despite the draft agreement remaining unsigned, in late 1976 the central government appointed the two committees as provided for in the understanding. The Saldhana Committee of technical experts was to concern itself with the important question of sharing water in years of insufficient rainfall and in "surplus years." A committee of secretaries (no name given in sources) was assigned the task of setting the operational guidelines of a Cauvery Valley Authority. Both committees were made up of representatives of the three states and the central government.

The Saldhana Technical Committee began a series of talks in 1976. By late 1977 about six meetings had been held but the chairman of the committee had to report that the opinions of the members "were so divergent that they could not be reconciled even on basic issues such as cropping pattern, normal year [of rainfall], protection to existing [irrigated] areas in normal years, procedure for allocating flows in a lean year, etcetera" (quoted in TN PWD, 1982: no page no.). Thus, this committee ended its series of discussions without having issued a report for the next Chief Ministers' meeting as had been requested in the draft understanding. The secretaries' committee on the proposed Cauvery Valley Authority was also unable to produce a report (TN PWD, 1982: no page no.).

In March 1977 the Lok Sabha elections were held and to everyone's surprise the Janata Party won a major victory, ousting Mrs. Gandhi's
Congress government. Nonetheless, Congress support remained high in the southern states. Tamil Nadu's Chief Minister, M. Karunanidhi, lost the assembly election to M.G. Ramachandran (MGR) and the ADMK. In Karnataka Devaraj Urs remained the Congress Chief Minister.

With the change in power at the centre, there were three different political parties (ADMK, Congress, Janata) represented at the next round of negotiations held in August 1978. It was not likely, however, that the outcome of these talks, which were doomed to failure before they began, would be influenced by the changes in New Delhi and Tamil Nadu. Without reports from the two centrally-appointed committees, the Chief Ministers had no new material on which they could base constructive talks. Additionally, MGR sent a letter to the Janata Minister for Agriculture and Irrigation to underscore his state's position that it did not accept the 1976 understanding which had been arrived at when Tamil Nadu was under President's Rule (TN PWD, 1982: no page no.).

At the August and October 1978 Chief Ministers' discussions (the latter was a bilateral meeting between Karnataka and Tamil Nadu), then, there was little chance that the states would come any closer to a reconciliation. Tamil Nadu repudiated the 1976 understanding, complaining that it did not protect the state's "existing ayacut" of 2.8 million acres in the Cauvery Basin. Karnataka and Kerala expressed some initial support for the 1976 understanding but by 1978 had rejected it.

In 1978 first Tamil Nadu and then Karnataka presented papers to one another and to the central government. The papers outlined the states' claims in the Cauvery dispute and indicated that Karnataka and Tamil Nadu
were as far from reaching an agreement in 1978 as they had been in 1970. Indeed, as Karnataka's paper was prepared after the receipt of Tamil Nadu's, much of it was a concerted attack on Tamil Nadu's contentions, especially those regarding useability of groundwater, the existence of surplus water in the Cauvery Basin, the savings of water Tamil Nadu might put into effect, and the "rationality" of Tamil Nadu's existing cropping pattern.

Karnataka took pains to indicate its disadvantaged position in the Cauvery Basin vis-à-vis Tamil Nadu. It pointed out that according to the Irrigation Commission Report (1972), the "drought-affected" area in Karnataka's portion of the Cauvery Basin extended to 5.29 million acres in twenty-four taluks while in Tamil Nadu it was only 3.16 million acres in fourteen taluks. Karnataka's paper also complained of the regional imbalance of irrigation development in the Cauvery Basin, showing that only eleven percent of its "culturable area" is under irrigation and much of that from tanks (small earthen reservoirs generally supplied by rainwater), not from the Cauvery River system, while in Tamil Nadu "33.5 percent of its culturable area is under irrigation, most of it from major and medium schemes" (Karnataka Irrigation Department, 1978: Par. 7).

The major point of Tamil Nadu's paper was that the "Cauvery River is already overburdened with existing commitments" and that the existing ayacut in Tamil Nadu must have priority of water supply over new irrigation projects. The author of this paper suggested that for future major projects in the Cauvery Basin, water would have to be imported from other basin, especially from the west-flowing rivers of Kerala. The paper concluded that Karnataka's reservoirs, both KRS and the newer
ones, "should not interfere with or impound the flows due to Tamil Nadu under the 1924 Agreement" (TN PWD (Vijayaraghavan), 1978: Par. 20).

Tamil Nadu's paper also claims that the Cauvery River is the "lifeline" of the state. It maintains that the Cauvery Basin accounts for over eighty percent of all canal irrigation in Tamil Nadu and that the Cauvery is Tamil Nadu's only dependable river for irrigation while it is "one of many dependable rivers in Karnataka." Furthermore, it points out that Karnataka has a population of 29.3 million (1971 census) and water resources of 3350 TMC while Tamil Nadu's population is 41 million (1971 census) but its water resources amount to only 1300 TMC. The author goes on to say that Tamil Nadu would be hard-pressed "to part with its limited water resources."

Thus, both states are keen to show how disadvantaged they are when compared with the other. Interestingly, while Karnataka criticised its lower riparian neighbour in the 1978 paper, Tamil Nadu's paper was critical of the centre's November 1974 draft agreement (it does not mention the 1976 draft). One is given the impression by this 1978 paper that the Tamil Nadu government felt its interests were being ignored by the centre: "the Draft Agreement prepared by the Government of India in November 1974 does not meet the requirements of Tamil Nadu or protect its existing irrigation" (TN PWD (Vijayaraghavan), 1978: Par. 19).

Despite the circulation of the two states' position papers as a basis for discussions, talks were not held again for over two years -- not until December 1980. Again one should look at the overall political situation in India in order to see why the central government gave the
Cauvery dispute such a singular lack of attention.

The October 1978 meeting had broken down amid hostility between Karnataka and Tamil Nadu which meant there was little reason to hold talks in the near future. However, by the time it would have been reasonable to consider a new set of meetings, the Janata government was teetering on the brink of collapse. The blow came in July 1979 when Prime Minister Morarji Desai could no longer count on a majority of the Members of Parliament to support his government. After much manoeuvring and bidding between Desai, Jagjivan Ram, and Charan Singh, the leader of the Jat community, Singh became the new Prime Minister.

He remained in that post for only three weeks before resigning, certain he would lose a forthcoming vote of non-confidence in Parliament because of Mrs. Gandhi's "sudden withdrawal" of her Congress (I) support for his government (Das Gupta, 1980: 179). With Charan Singh's resignation, the President, Sanjiva Reddy, decided that new elections should be held in January 1980 and that Charan Singh should head a "caretaker" government until then. With this sort of uncertainty in New Delhi it is little wonder that the central political leaders would lose sight of a river dispute in South India.

The January 1980 elections saw Mrs. Gandhi and her renamed Congress (Indira) win an astounding victory, gaining close to two-thirds of the Lok Sabha seats. Towards the end of Janata rule, Tamil Nadu's Chief Minister, M.G. Ramachandran, had lent support to Charan Singh in return for having two ADMK MPs named to Cabinet posts. Mrs. Gandhi, showing her displeasure with MGR's decision, had his government dismissed in February
1980 so that new assembly elections could be held. This strategy back-fired in that while Tamilians had voted for DMK candidates in the parliamentary elections, they voted overwhelmingly for MGR and his ADMK government in the June assembly elections.

In Karnataka Devaraj Urs resigned as Chief Minister in February 1980 after his national Congress (U) did poorly in the January elections. Urs' tenure as Chief Minister, from 1972 to 1980, was a period which brought important changes to Karnataka's political dynamics. With the 1972 Karnataka assembly election victory for the Congress (R), the downfall of the established ruling group in Karnataka represented by the Congress (O) was heralded. Mrs. Gandhi saw this as an opportunity to break the hold of the traditionally dominant castes in Karnataka, the Lingayats and Vokkaligas, thereby increasing her own influence in the state.

She inserted a relatively unknown politician from a minor caste group into the position of Chief Minister. In order for Devaraj Urs to consolidate his power in the state he had to overcome the grip of the Lingayats and Vokkaligas and he did this through an extremely clever manipulation of the patronage Mrs. Gandhi provided him. Urs aimed the patronage at those groups which had always been denied the spoils of power in Karnataka (Manor, 1977: 1867-68).

During the Emergency the Congress in Karnataka "had staggering amounts of money to spend thanks to the prodigious 'fund-raising' capacities of Devaraj Urs" (Manor, 1977: 1868). By the mid-seventies Urs had used funds from the centre and funds raised within Karnataka to create a power base for himself independent of the central Congress organisation. In the
immediate post-Emergency period the popularity of Urs' programmes aimed at the lowest castes and classes in Karnataka was demonstrated by the decisive Congress wins in the Karnataka Lok Sabha contest in March 1977 and the Assembly elections in February 1978.

In early 1979 Urs began to move away from Mrs. Gandhi and her fledgling Congress (I). Within the Congress (I) Urs spearheaded a political attack on Mrs. Gandhi's son, Sanjay Gandhi, and on the Youth Congress. Mrs. Gandhi "tried to wrest control of the state party organisation from him [Urs]" but she underestimated the strength of his personal control over Karnataka's Congress (Hardgrave, 1980: 185). Urs quit the Congress (I), taking the majority of the Karnataka government politicians with him. In the same year Urs formed the national Congress (U) which participated in Charan Singh's caretaker government with the Lok Dal and the AIADMK in late 1979.

Urs' ambition to make an impact on the national political scene was dealt a severe blow in January 1980 with Mrs. Gandhi's major election victory. His Congress (U) which had 56 seats in the Lok Sabha in August 1979, won only 13 seats. Moreover, in Karnataka the tide had turned in favour of Mrs. Gandhi with her Congress (I) winning 27 of the state's 28 Lok Sabha seats. By February 1980 defections from Urs' Congress state government had taken their toll, and he was forced to resign the Chief Ministership. From Mrs. Gandhi's perspective it was only fitting that a staunch Sanjay Gandhi supporter, R. Gundu Rao, be made Urs' successor.

It was only after the June 1980 elections in Tamil Nadu and the choosing of a Chief Minister in Karnataka, that attention could be turned
once more to the Cauvery dispute. By September 1980 the states had again prepared statements of their claims and in October 1980 discussions were held between the Secretary of the central Irrigation Ministry and officials of Karnataka, Tamil Nadu, and Kerala. This meeting dealt with technical questions only and was to clarify various figures which had been discussed at the 1976 talks (TN PWD, 1982: no page no.).

In December 1980, the Chief Ministers of the Cauvery Basin states again met with the Union Minister for Agriculture and Irrigation, Rao Birendra Singh. These talks, the last to be held to date, did nothing to bring the states to a resolution of the dispute. According to a paper prepared by Tamil Nadu's Public Works Department in January 1982, Tamil Nadu re-emphasised the points it had made in its note of 1978 and Karnataka put forward its "Ten Point Formula for Sharing of Cauvery Water" on the basis of which Gundu Rao said new discussions should be held.

Some of Karnataka's "Ten Points" are:

1) Each state in the Cauvery Basin shall be entitled to a fair and equitable share of water for beneficial use.
3) The aggregate quantity of water to be assessed as available for utilisation in the basin states shall be inclusive of both surface water and groundwater that would be wasted if untapped.
6) Such a fair and equitable allocation of waters amongst the basin states shall be made taking into consideration the basin factors viz., drainage area, yield contribution, cultivable area, culturable command, population, and drought prone area in the state.
7) Each state shall be entitled to utilise all the regenerated water accruing within its territory...
10) All the factors referred to above will be worked out with reference to the agreed sources of data.

Since the December 1980 discussions, five Chief Ministers' meetings have been proposed but all have been cancelled because of one or more of
the participants' "inability to attend." In October 1981, however, bilateral talks were held between Karnataka's Gundu Rao and Tamil Nadu's M.G. Ramachandran. Just prior to this round of discussions, MGR held an all-party meeting in Madras at which the consensus reached was that while Tamil Nadu need not press for the renewal of the 1924 Agreement, it should continue to insist on the "protection of the existing ayacut." At the end of the bilateral meeting, the impression given to the public was that "talks on the sharing of Cauvery waters were progressing towards a settlement" (IE, 16 October 1981).

To further the "progress" made at these talks, discussions were scheduled for November in Madras. By the end of the month, however, MGR was quoted as saying that the "Karnataka government's stand on the Cauvery problem is not conducive to national integration" and additional discussions were not held (IE, 2 December 1981).

In January 1982, leaders in Tamil Nadu expressed shock and dismay when they learned that Karnataka was going ahead with plans for a hydroelectric dam across the Cauvery at a place called Meghadatu. Gundu Rao declared that "it is ununderstandable (sic) how this Meghadatu Project comes in the way of discussions and poses a threat to Tamil Nadu's interests" (IE, 13 February 1982). Since the early 1960s, however, Tamil Nadu has planned to construct a power project at the Hogenekal Falls between Meghadatu and Mettur. The plan requires that a small section of Karnataka's territory be flooded and therefore needs Karnataka's consent and cooperation. Karnataka claims that Meghadatu will be a more efficient, higher-yielding project than Hogenekal. Of greater importance to
Karnataka, perhaps, is that Meghadatu is wholly in Karnataka's territory which means that it will not have to share the benefits of the project with Tamil Nadu. Apparently, if Meghadatu is constructed, it will still be possible to construct a power dam at Hogenekal Falls but on a reduced scale (Interview, Ramachander Rao: 14 May 1982).

Despite the obvious antagonism between Tamil Nadu and Karnataka over the Cauvery dispute, the two states' relations are otherwise cordial. In fact, M.G. Ramachandran and Gundu Rao are reputed to be best of friends, and Karnataka's new Chief Minister, Hegde, has been promoting unity and cooperation among the Chief Ministers of the four southern states. As we have seen, however, the friendly relations between Tamil Nadu and Karnataka have not helped to encourage an early settlement of the dispute.

The Cauvery River dispute has continued for thirteen years (1970 to 1983) but there is still no end in sight. The central government has acted as a mediator in the dispute since 1970 but its efforts to help find a resolution have noticeably flagged since the end of the Emergency. The central government's commitment to resolving the dispute has dwindled since 1976 and unfortunately, without that commitment from the centre to the Cauvery dispute's early resolution, there is no chance that the states would end the conflict through their own efforts.

Although the likelihood of settling the Cauvery dispute through negotiations has decreased over the years, the centre still refuses to refer the dispute to a tribunal. In April 1982, for example, Kedar Pandey, the newly appointed central Minister for Irrigation, ruled out the possibility
that the Government of India would appoint a tribunal to adjudicate the
dispute. At the same time he and his colleagues assured the Lok Sabha
that the centre was making "sustained and continuing efforts" to
achieve an early settlement of the Cauvery dispute.
1. The command area is the irrigable area of an irrigation system.

2. An anicut is a dam or weir of stone and masonry which functions to raise and divert water from a river or stream into an irrigation supply channel.

3. Live storage capacity is the reservoir's full capacity excluding that volume of water which is not used for operational purposes.

4. The term semi-dry crop refers to any crop which does not require large quantities of irrigation water. It is used to distinguish crops like wheat and cotton from wet crops like paddy and sugar-cane which do require large amounts of water.

5. Interestingly, Tamil Nadu later became more anxious about Kabini Dam which is on a tributary to the Cauvery River below KRS. This is because it was felt in Tamil Nadu that the "powerful KRS farmers" would not allow the Hemavathi and Harangi projects to reduce their share of Cauvery water. As Kabini Dam provides about one-third of Mettur's yearly water supply it is extremely important to Tamil Nadu but because it is below KRS there is little pressure within Karnataka for Kabini to release its impounded water (Namasivayam, 1975: 10).

6. Kerala has been involved in the Cauvery dispute since the early 1970s and Pondicherry since the mid-1970s, but in a minor way. Only three percent of the Cauvery Basin is in Kerala and a much smaller fraction is in the Karaikal section of Pondicherry. While they have both been involved in the negotiations, without question the main contestants are Karnataka and Tamil Nadu. All the important issues of this dispute relate to Karnataka and Tamil Nadu alone and there is no doubt that should Tamil Nadu and Karnataka reach agreement, Kerala and Pondicherry would have no choice but to go along with it. Moreover, Kerala and Pondicherry were not mentioned by any of my informants on their own accord and the two states seldom received coverage in press reports of the dispute. They will, therefore, be omitted from this discussion of the Cauvery dispute.

7. Dependability refers to the minimum volume of river flow to be expected in a given percentage (50%, 75% most commonly used) of years for which flow data are available. If, for example, river supply is equal to a minimum of 350 TMC in 18 of 24 years and equal to 400 TMC or more in 12 of 24 years, the dependable water supply based on 50% dependability = 400 TMC and based on 75% dependability, 350 TMC.
8. Surplus flow or water is a river's yearly average volume of flow not currently used and available for allocation.

9. Groundwater is any water found underground in porous rock strata.

10. A filter point is a shallow well.

11. A regulator is a structure on a canal designed to regulate the water level or discharge or both by means of adjustable shutters. Tailend regulators are the last regulators of the irrigation system.

12. Duty refers to the area irrigated during a base period (cropping season) divided by the mean supply of water utilised in cusecs (cusec = 1 cubic foot of water per second). Low duty indicates an inefficient irrigation system wherein too much water is needed to irrigate a certain amount of land.

13. Culturable area is arable land.
The Role of Federal Politics in the Contemporary Dispute

The Cauvery River dispute has been marked by thirteen years of arguing, trading of insults, and numerous rounds of unsuccessful negotiations. Since 1970 the central government has chosen to participate as a mediator in the dispute. In the first half of this chapter the basic arguments the two states have made during the dispute will be explained in terms of their hydrologic-economic relationship and in terms of important political factors internal to Tamil Nadu and Karnataka. In the second half of the chapter the extent of the New Delhi government's willingness to act decisively to resolve this dispute will be analysed taking into account its perceptions of the political costs and benefits involved. We will see that federal politics has played an extremely important role in determining the conduct of the conflict's main actors.

In the dispute Tamil Nadu and Karnataka have presented the same arguments repeatedly. In brief, Tamil Nadu insists that its existing ayacut in the Cauvery Basin be guaranteed the minimum amount of water necessary to maintain it at the current level of over two and a half million acres. Tamil Nadu claims it has prescriptive rights to the Cauvery's water and says the 1924 Agreement is a document which upholds those rights.

Karnataka argues that Tamil Nadu can no longer curtail Karnataka's right to develop the Cauvery and also that Tamil Nadu can no longer expect to dominate the Cauvery Basin through unfair agreements. Karnataka further argues that it is entitled to an equitable share of the Cauvery's
water resources and can make no guarantees that Tamil Nadu's existing ayacut will continue to receive enough water to maintain it at its current level. Karnataka asserts that the 1924 Agreement is prejudicial to its rights and argues that it became null and void in 1974.

LeMarquand's concept of hydrologic-economic relations helps explain why the two states have developed the positions outlined above. Karnataka and Tamil Nadu are in an upstream-downstream relationship to one another which presents few "integrated development opportunities." The upstream state has no economic incentive to come to an agreement with the downstream state based on the hydrology and development of the river. Tamil Nadu developed its portion of the Cauvery River much earlier than did Karnataka but when Karnataka became technologically and economically able to increase its utilisation of the river's waters, Tamil Nadu initiated the dispute because it felt its own interests were being threatened by Karnataka's development efforts in the Cauvery Basin.

The Tanjavur Delta, with Tamil Nadu's highest concentration of paddy land, is one of the state's richest regions and certainly has the state's wealthiest landowners. These influential landowners have a long history, dating back to before the original Madras-Mysore conflict of the 1880s, of working actively to protect their irrigation rights in the Cauvery Delta (Michael, 1979: 50-57). In the early 1970s when Tamil Nadu filed its Supreme Court petition the landholders of Tanjavur separately filed a similar petition. In 1972 the Tanjavur District Farmers Association released a pamphlet entitled "Mother Kaveri and Anguished Tanjavur" in which the authors expressed concern that three million people in the
delta would lose their only means of livelihood should they be unable to rely on Cauvery waters for irrigation.

The wealthy Tanjavur landholders, reputedly an important source of funds and support for Tamil Nadu's political parties, have pressured the state government to protect their interests in the Cauvery Delta. The current ADMK government leaders know that the Tanjavur agriculturalists' support is not easily won. In the assembly elections of 1980, for example, of the twenty MLAs from Tanjavur District only nine were ADMK (TN Government, 1981).

There is a strong consensus in Tamil Nadu that the Cauvery River is of vital importance to the state as a whole. Much emphasis has been given to the notion that the Cauvery is the state's only reliable river and that all would suffer should Karnataka develop the Cauvery Basin as it sees fit. The basin covers about thirty-eight percent of Tamil Nadu's territory and contains over thirteen million people or about one-third of the state's population. It is therefore in the Tamil Nadu government's political interests to show it is fighting assiduously to prevent Karnataka from taking "a single drop" of Cauvery water from Tamil Nadu.

The ex-Chief Minister, Karunanidhi, and his ADMK successor, M.G. Ramachandran, have both called numerous all-party meetings to discuss the Cauvery dispute. The all-party meetings' utility is two-fold. First, the unanimity arising from these all-party discussions allows the Madras government to present a strong, perhaps more aggressive front at negotiations. Second, if the opposition parties are in public agreement with the Tamil Nadu government's actions, they will have much less
justification for criticising the government once an agreement has been settled upon. Indeed, Tamil Nadu's opposition parties, including the DMK and Congress (I), have little criticism of the ADMK's stance on the Cauvery dispute and in fact, the current government's position is no different from the previous government's.

In the final analysis, the Cauvery River is too important for too large a number of Tamilians for any of the political parties to do anything but support the argument that Tamil Nadu must be entitled to its existing share of Cauvery water. Given the hydrologic-economic relationship in the basin, Tamil Nadu is on the defensive vis-a-vis Karnataka, making it clear to all that the "enemy" on this issue is another state and not a political party within the state.

The Karnataka government, Congress or Congress (I)-controlled until the assembly election of January 1983, has also held all-party meetings but these have not been as frequent or as consensual as those held in Tamil Nadu. Some of my informants in Bangalore were critical of the Karnataka government's handling of the dispute, accusing the Gundu Rao regime of being a "lap-dog" of Indira Gandhi. They said that with Gundu Rao as Chief Minister, Mrs. Gandhi could favour Tamil Nadu in the dispute without fear of losing any support from the Karnataka government (Interview, Subbaiah: 12 May 1982). Devaraj Urs was criticised for almost bartering away Karnataka's water rights for his own political gain during his tenure as Chief Minister (1972-1980) (Interview, Balekundry: 15 May 1982).

Explanation is needed for the lack of consensus in Karnataka regarding
the state government's handling of the dispute. To use Ingram's term, the Cauvery River's "locality" in Karnataka is part of the answer. The Cauvery Basin covers only nineteen percent of Karnataka's territory in the far south of the state, and provides no benefits to the people of the much larger northern part of the state. Northern Karnataka lies in the Krishna and Tungabhadra Basins which cover about fifty percent of Karnataka's territory (Irrigation Commission, v.2: 270). Thus, in the north there would be demand for development of rivers in the Krishna Basin and probably little if any interest in the south which, with its greater urbanisation and industrial development, would be viewed as an area already characterised by a greater concentration of wealth than the northern "hinterland."

Another reason for the lack of consensus among Karnatakaans on the Cauvery dispute may lie in the caste structure of the state. Simply, the south is dominated by Vokkaligas while the north has a large number of Lingayats (Manor, 1977: 1865). The two groups are traditional rivals and the Lingayats, in competition with Vokkaligas for government patronage, have much less interest in the Cauvery than in the northern river basins.

While Tamil Nadu necessarily must be on the defensive in the Cauvery dispute, Karnataka need not, as it is impossible for Tamil Nadu to undertake any development in the Cauvery Basin that could reduce Karnataka's share of water. It is more difficult for inter-party consensus to be reached and maintained in Karnataka without a constant external threat to its riparian interests. Karnataka has, however, greatly resented Tamil Nadu for its past control over the river and there is anger in the state that "wealthy" Tamil Nadu should want to maintain its riches at the expense
of "poorer" Karnataka (Interviews, Magdum, Bommai: 12 and 14 May 1982).

The dissension which has arisen in Karnataka has had little effect on the state's tenacity in the dispute. Southern Karnataka, with the state's two largest cities (the old capital, Mysore, and the new capital, Bangalore) and an important industrial sector has enjoyed greater economic and political strength than have the northern areas. When Karnataka became greatly enlarged through States Reorganisation in 1956 with the addition of erstwhile Bombay Karnataka, a large number of Kannada-speaking officials, including engineers, moved from Bombay to Bangalore to take up their careers there. In so doing they became involved with the development of the Cauvery Basin (Interview, Magdum: 12 May 1982). Lines of patronage move out of the capital, and the newly arrived bureaucrats effectively created new lines of patronage through sponsoring and promoting projects in the heretofore undeveloped southern river basin.

It is likely that the patronage and power of a number of officials and ministers of the Public Works Department (PWD) hinges on the construction and completion of the major irrigation and power projects in the Cauvery Basin. A list of projects undertaken in the Second Five Year Plan (1956-1961) shows that seven of the fifteen major and medium irrigation projects in Karnataka were located in the Cauvery Basin despite its relatively small size. Added impetus came from the national planning machinery which gave emphasis to irrigation and power projects in the Second Plan. In the First Five Year Plan (1951-1956) there was only a single project undertaken in the Cauvery Basin (Magdum, 1966: 123).
While the Cauvery Basin is of less importance to Karnataka as a whole than it is to Tamil Nadu, its development is a significant factor in increasing the prosperity of southern Karnataka and the patronage of the Public Works Department. Karnataka's PWD has become very powerful as it has control over irrigation, power, and highway construction. Karnataka's Second, Third, and Fourth Five Year Plans showed that Irrigation and Power alone received 41.5 percent, 41.5 percent, and 50.7 percent respectively in the Plans' allocation of funds (Hettne, 1977: 351). Bjorn Hettne (1977: 352-53) stated that

the PWD spent nearly one-third of the total State Budget [3rd Five Year Plan] and as the volume and nature of work expanded it had become necessary to parcel out the various projects, of which dam constructions were the most important, to private contractors. It was estimated that the overall cost of farming out work to these contractors added up to a minimum of twenty-five percent of the entire outlay of the department.

To Helen Ingram's thesis that water is important to the locality, one should add that water is equally important to those who command the lines of patronage arising from water development projects.

Karnataka and Tamil Nadu have different, although perhaps equally compelling, reasons for considering the Cauvery River vital to their interests. Despite the differing reasons, however, the states' arguments, broken into their legal, technical, and economic aspects, are consistent with the hydrologic-economic relationship of the two states in the Cauvery Basin.

The 1924 Agreement provided the two states with an early point of disagreement. Karnataka complained about the agreement's legitimacy and
its bias in Tamil Nadu's favour. According to informants in Bangalore, Karnataka attempted to have the agreement declared null and void as early as 1947 when the princely state of Mysore, one of the parties to the agreement, ceased to exist (Interview, H.N. Nanje Gowda: 14 May 1982). The argument was renewed in 1956 when the States' Reorganisation Act brought fundamental changes to the map of India, including a much enlarged Mysore but a decreased Madras which had already lost its Telugu-speaking area in 1953.

The 1924 Agreement rankled Karnataka because it limited the state's sovereignty over the Cauvery River within its own territory and denied it development opportunities while Tamil Nadu's Tanjavur Delta prospered. By virtue of its geographical position in the river basin the upper riparian state should have had a great deal of control over the Cauvery River. Because of the 1924 Agreement, however, not only were its development efforts inhibited, it was necessary for the state first to obtain Madras' permission for projects on virtually all of the rivers of the Cauvery Basin. After 1956 Karnataka could no longer stomach this compromise of its territorial sovereignty and neither could it accept Tamil Nadu's continued prosperity at its expense. By the early 1960s Karnataka had stopped sending its Cauvery Basin project reports to Tamil Nadu as required by the 1924 Agreement (Kalyani and Perumal, 1978: 136).

Not surprisingly, Tamil Nadu has given full public support to the position that the 1924 Agreement should be renewed, as it fully protects the interests of the lower riparian state. The agreement strictly regulates the operation of Krishnarajasagar Dam so that Tamil Nadu's water
needs are met before Karnataka's. The 1924 Agreement was, however, re­
jected by the central government as a basis for negotiations at the
 interstate meeting of May 1972 because it did not expect Karnataka would
abide by its provisions any longer. Therefore the Tamil Nadu state
government has not mentioned the 1924 Agreement in the position papers
it has circulated among the concerned central and state government
officials and politicians. There is tacit acceptance in Tamil Nadu that
the 1924 Agreement is too one-sided to be enforced on Karnataka.

The Tamil Nadu government's arguments in favour of renewing the
1924 Agreement are meant to convince the public and opposition parties
that it is doing its utmost to protect the state's interests. When M.G.
Ramachandran changed his public stance in late 1981 and said that Tamil
Nadu would not "harp" on the 1924 Agreement, it appeared that Tamil Nadu
was making a concession to Karnataka. MGR used this as a ploy to indi­
cate that his government was eager to arrive at an agreement but at the
same time would not allow Tamil Nadu's prescriptive rights to be compro­
mised. He continued to insist that the "existing ayacut" in Tamil Nadu
must be fully protected which, in effect, is little different from in­
sisting on the 1924 Agreement's renewal (IE, 11 October 1981).

The two states' legal positions are predictable. Tamil Nadu asserts
that it has prescriptive rights over the river while Karnataka demands
that Cauvery waters be shared on the basis of equitable apportionment.
In India the principle of "equitable apportionment" is widely accepted
as the primary legal principle applicable to the settlement of the river
disputes, and it has been used as a guiding principle by the river disputes
tribunals appointed to date (Jacob, 1976: 614-15).

Interestingly, despite its claim to prescriptive rights over Cauvery water, Tamil Nadu has a number of arguments to show that even if an allocation were determined on the basis of equitable apportionment, it would still be entitled to the larger share of Cauvery water. These arguments are based on such factors as size of population, non-availability of other resources, and extent of drainage area. Therefore Tamil Nadu argues that it is entitled to prescriptive rights and that it is "equitable" that Tamil Nadu's share of Cauvery waters not be decreased.

Tamil Nadu and Karnataka also disagree as to the method of resolving the dispute. Since 1970 Tamil Nadu has made frequent requests for a tribunal while Karnataka has insisted the dispute should be solved through negotiations. Tamil Nadu hopes that if the dispute were referred to a tribunal, a stop-work order would be issued to Karnataka so that construction of its Cauvery Basin projects (especially Kabini, Hemavathi, and Harangi) would be halted while the tribunal heard the case. Tamil Nadu would want to see a tribunal adjudicate the dispute before Karnataka has a chance to complete the projects, making them fully operational. State leaders in Tamil Nadu may also feel that their position in the Cauvery dispute would receive a fairer hearing by a tribunal than by the Congress central government.

Other tribunals in India have chosen cut-off dates in deciding how to allocate water between states where projects already exist (Jacob, 1976: 616). A tribunal in 1973, for example, may choose the year 1965
and say that any project completed or substantially completed by that year should be defined as an "existing project." It is generally accepted, although not publicly by Karnataka, that "existing" projects on a river should receive some priority in the allocation of water over more recent or proposed projects. Karnataka is, no doubt, interested in completing all of its projects so that, should a tribunal be constituted, Karnataka's new projects would be considered on par with Tamil Nadu's already existing projects. To date there has not been any indication that the Cauvery dispute would be referred to a tribunal.

Both Karnataka and Tamil Nadu seem to have taken a negative view of the Cauvery dispute's negotiations. From late 1974 onward, the two states have severely criticised one another between meetings so that any air of cooperation that might have been created at the discussions was effectively stifled. In recent years four sets of meetings have been cancelled altogether because one or another of the Chief Ministers has been "too busy" with other matters.

Tamil Nadu has always wanted a tribunal to settle the dispute, which is one reason it has never evinced a willingness to compromise at the discussions. In the future, however, the absence of an agreement will become more and more harmful to Tamil Nadu's interests. Because Karnataka is currently unable to withhold enough water from Tamil Nadu's Mettur Reservoir to harm the irrigation system of the Tanjavur Delta, Tamil Nadu's politicians are able to get more political mileage out of proclaiming that "not a drop" of Cauvery water will be given up to Karnataka than out of being amenable to some form of compromise.
Karnataka has always expressed support for negotiations but the state has little reason to come to an agreement with Tamil Nadu as it is impossible for the latter, through its development efforts, to harm Karnataka's development potential in the Cauvery Basin. Additionally, Karnataka could not be sure that an agreement would not infringe on the state's development plans for the Cauvery, although an early agreement could be advantageous to Karnataka, if it were to mean that its basin projects would be included in the Five Year Plans. The Chief Ministers of both states seem to have given up entirely on negotiations as a vehicle to reach agreement. Informants in both Karnataka and Tamil Nadu termed the talks "useless;" merely opportunities to re-iterate their states' well-known positions.

Political leaders in both Karnataka and Tamil Nadu have shown a penchant for exaggerating their water difficulties in order to give weight to their exaggerated demands for the Cauvery's resources. The latter are made to keep the state opposition parties at bay. Both sides argue that they are "water poor" -- Tamil Nadu says Karnataka has greater "water wealth" and Karnataka, of course, argues the opposite. Thus, Tamil Nadu shows that its availability of water per capita is much lower than Karnataka's, that its number of drought-affected districts is high, and the Cauvery is the "lifeline of Tamil Nadu" while Karnataka has a number of reliable rivers. Tamil Nadu paints a picture of destitution and poverty in the state should it be denied the waters of "Mother Cauvery." Politicians in Tamil Nadu create the impression that Karnataka will be able to deny so much water to Tamil Nadu that the Tanjavur Delta
will be turned to dust!

Karnataka, on the other hand, points out that despite its providing over fifty percent of the Cauvery Basin's waters, many of its districts in the basin have been declared drought-affected by the Irrigation Commission because of the restrictions imposed on the state by the 1924 Agreement. Karnataka further claims that Tamil Nadu's agriculturalists are wasting Cauvery water while many parts of the upstream areas of the Cauvery Basin are in need. Moreover, Tamil Nadu has increased its irrigated acreage from canals to over two and a half million acres while Karnataka has only 635,000 acres under irrigation and much of that from minor irrigation works such as tanks, which do not even use river water. Karnataka also states that the Tanjavur Delta has large areas where paddy is double-cropped while in Karnataka's portion of the Cauvery Basin, the farmers often do not have enough water for even a single crop of paddy.

Two notable technical issues in the Cauvery dispute relate to groundwater utilisation and surplus flow in the basin. Karnataka argues that Tamil Nadu must exploit its large groundwater potential in the delta so that less river water is needed there for irrigation, resulting in more water becoming available for Karnataka's use without harming Tamil Nadu's interests. Tamil Nadu contends that its groundwater resources are limited. Part of the reason for Tamil Nadu's position is that groundwater, which must be pumped to the surface, is more expensive to use than river water. The landholders prefer to irrigate their crops with surface water, for which the state government charges a minimal user's
fee, and no doubt make that preference known to the government politicians and/or officials.

Another reason that Tamil Nadu does not acknowledge that it might have a large supply of groundwater in the delta is to maximise its allocation of Cauvery water. If groundwater is not considered, Tamil Nadu will receive a larger share of surface flows but still have its groundwater supply to exploit at a later date.

The amount of surplus water (unutilised water still available for allocation) in the Cauvery Basin is closely related to the issue of groundwater. Tamil Nadu, which claims to have little groundwater, states there is no surplus water in the Cauvery Basin because surface waters are all accounted for. Karnataka's arguments are diametrically opposed to Tamil Nadu's. Karnataka's position is that not only is there much groundwater, a large amount of surface water flows unutilised into the Bay of Bengal every year because Tamil Nadu's irrigation practices are so wasteful.

Tamil Nadu hastens to show that it is not wasting water and claims to have the most efficient irrigation system in South Asia. In 1970, however, the World Bank's Cauvery Delta project report predicted that gross value of production in the project area would nearly double current production upon completion of the delta modernisation project. The Tamil Nadu government has been playing down the room for improvement in the delta, although in 1982 it released a proposal for a Tanjavur Delta modernisation project that will cost 3660 million rupees. If Tamil Nadu asserts that it already has an efficient irrigation system, this implies
that it cannot accept less Cauvery water than it has in the past, lest the irrigated acreage be diminished. If Tamil Nadu then modernises its system it will be able to irrigate even more land while the amount of Cauvery water it receives remains constant.

If, however, Karnataka's arguments that much water is wasted in the delta and that groundwater is present in large quantities and should be used, are taken to be true, then Tamil Nadu's share of Cauvery waters would be reduced, thus forcing the state to modernise its system in order to maintain the same irrigated acreage. Tamil Nadu's arguments that Karnataka's irrigation system in the Cauvery Basin, especially around Krishnarajasagar, is inefficient may be discounted, considering how much smaller it is (Karnataka cannot be wasting much water when the amount it uses is so little.) Nonetheless, Tamil Nadu presents this argument in order to show that Karnataka is not entitled to a greater share of Cauvery water than it has now.

The technical people in both Karnataka and Tamil Nadu are fiercely loyal to their own states, thus making it impossible for them to give similar interpretations of the basin's hydrological data. Data are presented and interpreted in such a way as to support the politicians' arguments at the interstate meetings. Helen Ingram (1969: 15) pointed out similar findings in the United States where states used experts' reports, some of dubious scientific merit, to support claims for federal financing of river development projects. Engineers in India are reliant on politicians for their promotions so they have an incentive to prepare the types of technical arguments they know the politicians want to use.
The states' tenacity has caused the river dispute to be protracted which in turn has curtailed development efforts in the Cauvery Basin. In 1970 when the World Bank was prepared to fund a delta modernisation project, the central government did not allow it to go ahead because of the dispute. Furthermore, Karnataka and Kerala have both suffered in that their Cauvery Basin projects have not been sanctioned by the Planning Commission. This has meant that construction of the projects has either been cancelled altogether or has gone ahead very slowly because of a paucity of direct funding.

In years of poor monsoons the lack of agreement on allocation of Cauvery waters has had a particularly adverse effect on Tamil Nadu. In these years (1976, 1980, 1982) the state's political leaders have been reduced to begging for more water from Karnataka, although the Tamil Nadu government is worried that the need to beg for water lends credence to the notion that Karnataka does have control over the Cauvery, thereby jeopardising Tamil Nadu's prescriptive rights over Cauvery water.

Karnataka's newest storage reservoirs have been completed but are not in full operation as the major task of building canals to nearby arable land has yet to be undertaken. Thus, Karnataka stores Cauvery water but can use only a small portion of it. Nonetheless, as Helen Ingram mentioned, a state will be "loath to part with" even water it cannot possibly put to beneficial use. In drought years Karnataka releases a minimum amount of water to Tamil Nadu because it is concerned with protecting its own agriculturalists' interests first but also because it is concerned that the central government or a tribunal would decide that
Karnataka has set a precedent and should always release that amount to Tamil Nadu in dry years.

With the two states arguing thus, the task of allocating the waters of the river becomes extremely complicated. Each state has presented its case in such a way as to justify claims to the largest possible share of Cauvery water. Given the emotive nature of water as an issue, its close link with wealth and the potential for wealth, it is only to be expected that the states would stubbornly cling to the types of arguments presented above and be unwilling to retreat from their exaggerated demands. However, the politics of the two states, including patronage networks, have been extremely important in delineating the course of the Cauvery dispute, as has the Indian central government's involvement in the conflict.

In a river dispute it is a relatively simple matter to find the motivating forces behind the states' actions as the economic and political rewards and losses to be had from settling the conflict in a particular way are quite clear. For the centre, however, the motivating forces behind its actions are less obvious and much more open to speculation.

In the late 1960s, before the dispute formally began, central Irrigation Ministry officials participated in a series of meetings with technical officers of the basin states to discuss Karnataka's Cauvery Basin projects. Ever since 1971, when the Madras government filed a petition in the Supreme Court of India to refer the Cauvery dispute to a tribunal, the central government has maintained that the dispute would be best solved through negotiations. To this end, central Irrigation Ministers have chaired eleven
meetings with the Chief Ministers of the concerned states.

The first central Irrigation Minister to deal with the Cauvery dispute was Dr. K.L. Rao. Rao was the minister who referred the Narmada, Krishna, and Godavari disputes to tribunals when further negotiations appeared pointless. His pattern of negotiations for the Cauvery dispute revealed a commitment to its resolution. His strategy, to discuss first the less sensitive issues on which the states could agree, helped to create an air of cooperation at the early meetings.

Unfortunately the air of cooperation was destroyed almost immediately by discussion of the substantive issues of this dispute. The central government's draft agreement presented to the states by Jagjivan Ram at the November 1974 meeting included the important provision that further exploitation of the river could be made through economies in the current uses of water mostly but not entirely by modernising the irrigation system in the Cauvery Delta. This was unacceptable to Tamil Nadu and other parts of the draft were condemned by Karnataka.

During the Emergency the New Delhi government, in its eagerness to show how effective Emergency rule could be, placed greater emphasis on resolving river disputes. Mrs. Gandhi's Emergency regime's public face was one of proving that law, order, efficiency, and economic progress could prevail in India. Part of the proof lay in solving disputes which hindered the country's development potential.

Jagjivan Ram miscalculated, however, in proposing another draft agreement at a time when there was President's Rule in Tamil Nadu, since the advisors there felt it was beyond their scope of authority to sign
such an important document. Interestingly, however, Karnataka Chief Minister Devaraj Urs indicated a willingness to accept the 1976 draft agreement even though it was little different from the much-criticised 1974 draft.

A probable reason for Urs' willingness to accept a settlement of the Cauvery dispute in 1976 related to his ambitions to create an independent power base in Karnataka from which he could launch himself into national politics. Urs must have perceived that if the dispute were settled during the Emergency, the central government would have been forthcoming with more patronage and direct funding for Cauvery Basin projects which would more than outweigh Karnataka's making some concessions to Tamil Nadu. With the extra money, Urs would have undoubtedly built up a greater support network among the powerful landowners of southern Karnataka.

Since Independence, the central government has generally shown a preference for negotiations over tribunals. In the Krishna and Godavari disputes two Congress states -- Karnataka and Maharashtra -- requested a tribunal as early as 1962 but the centre did not constitute a tribunal until 1969. Likewise, in the Narmada dispute there were nine years of negotiations before a tribunal was appointed. No other disputes, including the Ravi-Beas which was only resolved after fifteen years of negotiations, have been settled by tribunals.

Negotiations are generally preferable to any other means of settling river disputes. A number of authors, N.D. Gulhati among them, favour negotiations as did the Indian Administrative Reforms Commission (ARC). The ARC (1969) stated in its report, however, that the central
government often allowed negotiations to go on for too long with the result that they were having a divisive effect on the states involved, rather than the hoped for "integrative" effect. It suggested that the Inter-State Water Disputes Act be amended so that a time limit could be placed on negotiations and that any outstanding disputes be referred to tribunals after the limit had been reached, but the central government has not taken any action to make this suggested amendment.

A settlement which has been reached by negotiations is more likely to be satisfactory to all parties than an imposed solution. Politicians who have signed an agreement which has been arrived at through discussions they participated in, will be more committed to it than to an imposed solution and the leaders who have signed a negotiated agreement will defend its merits before the state opposition parties. If a tribunal's imposed solution delivers less than the state has demanded, one may well see the state government and opposition united to resist its implementation. However, when it appears that a negotiated settlement is an impossibility, an imposed solution would be preferable to no solution at all.

An additional problem is that tribunals may hold up construction of ongoing projects or may themselves be held up by the states' court actions. During the Narmada dispute the tribunal's deliberations were held up for a couple of years because Rajasthan and Madhya Pradesh had a stay of proceedings issued against it by the Supreme Court and in the Krishna dispute, Karnataka rejected the tribunal's preliminary findings, thus delaying its further consideration of the dispute.
The central government may be hesitant to appoint tribunals because they represent a devolution of its decision-making power. If a tribunal is adjudicating a conflict, the centre must relinquish some of its authority and forego the opportunity to influence the outcome of the dispute through its leverage with the States involved. A tribunal may be purposely oblivious to political factors which the centre would take into account. The centre may also be concerned that despite a conflict being resolved by a tribunal, the disputants might still blame the centre for any perceived inequities in the tribunal's decision. Thus, the major political advantage for the centre in referring a dispute to a tribunal would be lost.

One way in which the centre could help resolve the Cauvery dispute is by offering financial palliatives to the state which gives up part of its claim to the river's water. However, the financial incentives to encourage compromise are not likely to be forthcoming from the centre. Part of the reason lies in the centre's concern for its image in the states. The centre is involved in some way with every interstate dispute in India and if it were to set the precedent of offering major financial rewards to end one dispute, other states would come to expect similar rewards for ending their disputes. If the rewards were not to materialise, the central government could jeopardise its political support in the losing states. In resource scarce India the economic costs of meting out financial rewards to end a dispute are high and may not result in political benefits to the central government. It would be especially difficult for the centre to offer rewards in a single dispute without one state
claiming, with or without justification, that the central government was favouring the other side.

The hydrologic-economic relationship of the Cauvery River disputants serves to narrow the centre's options in ending the dispute. The Cauvery, unlike the other major rivers of India, is a river whose waters are already so largely utilised by one state (Tamil Nadu) that little is left for the other basin states' use. Other river disputes in India have involved, for the most part, undeveloped rivers, meaning that there were large amounts of unutilised water available for allocation. It is easier to encourage a solution where water needs to be distributed and not re-distributed, as in the Cauvery River dispute.

However, the political factors must not be lost sight of. A distributive river dispute, although hydrologically less difficult for the centre to resolve than a re-distributive conflict, may be extremely difficult for the central government to end if it perceives that the political costs of its favouring a particular solution are high. This was true of the Narmada, Krishna, and Godavari disputes which all involved a number of Congress states (see Chapter II). After years of negotiations the central government finally referred the disputes to tribunals because the risk of alienating one or more of the involved states through its further mediation efforts had become too high.

What is the central government's perception of the political costs of resolving the Cauvery dispute? As has been pointed out, it is less in Karnataka's interests to have an agreement than it is in Tamil Nadu's. Up until January 1983, Karnataka's state government has been mostly
controlled by the same party, the Congress, as that in New Delhi, while Tamil Nadu has been under the rule of regional parties since 1967. Has this caused the centre to favour Karnataka by avoiding a resolution of the dispute? The evidence suggests that the central government has been unwilling to force the two states to come to an agreement because it does not wish to alienate either Karnataka or Tamil Nadu. This is little different from the centre's involvement in other river disputes in India where all the disputants have had Congress governments.

It is not clear that on political grounds the central government has much reason to favour Karnataka over Tamil Nadu. Despite Tamil Nadu's being under opposition rule, there has generally been a spirit of cooperation between the DMK-ADMK regimes and Mrs. Gandhi's Congress governments. Both the DMK and the ADMK have been actively seeking support from Mrs. Gandhi so that they have a better chance of defeating one another at the polls. It is to Mrs. Gandhi's advantage that the two regional parties are at each other's throats, for there is a greater chance that her Congress would gain strength at the next election and/or have increasing influence with the governing party in Tamil Nadu. Mrs. Gandhi, then, is generally seen as a potential ally in Tamil Nadu and she knows she will have allies there. In the three Lok Sabha elections since 1967 -- 1971, 1977, and 1980 -- Congress support has increased in Tamil Nadu, from 12.5 percent in 1971 to 31.6 percent in 1980. Mrs. Gandhi would be unlikely to forego an opportunity to improve her power base in an opposition state (where support for her is on the increase) by ignoring the state's needs in its most important river basin.
It is also possible, moreover, that Mrs. Gandhi or her Irrigation Ministers receive advice favouring Tamil Nadu from her Tamil "lieutenants" in the Congress (I): R. Venkataraman (Minister of Finance in the 1970s and now Defence Minister), R.V. Swaminathan (until February 1983, Minister of State for Agriculture), and G.K. Moopanar (All-India Congress Committee (I) General Secretary). Moopanar is himself one of the wealthiest landowners in the Tanjavur Delta and so it is very much in his personal interests to see Tamil Nadu sign an agreement which guarantees its prescriptive rights over Cauvery water. It is unknown, however, to what extent these Congress (I) Tamilians have attempted to influence the central government's policy toward the Cauvery River dispute or whether they in fact have influence. There are also a large number of Tamilians in the Indian Administrative Service, but again it is impossible to say whether or not they would try to influence government policy in Tamil Nadu's favour. Karnatakans charge that the large number of Tamilians in the IAS does lead to central government favouritism of Tamil Nadu.

This does not mean, however, that the central government does in fact favour Tamil Nadu over Karnataka in the dispute. In the 1970s, Karnataka has been primarily in Mrs. Gandhi's camp and Chief Minister Devaraj Urs was, as Manor (1978) pointed out, the recipient of Congress patronage from New Delhi in order to ensure the continued political demise of the once-powerful Congress (O) in Karnataka. A problem from Mrs. Gandhi's perspective, however, was that Urs developed an independent power base in Karnataka which ultimately led to his exit in 1979 from Mrs.
Gandhi's Congress.

Mrs. Gandhi's tenure as Prime Minister of India has been marked by her great sense of political insecurity about her power base which has made itself felt in the workings of India's political system. As Myron Weiner (1976: 901) pointed out, "both development and distributional policies will be shaped by Prime Minister Gandhi's overriding need to consolidate her power." Weiner's (1982: 344) further observations led him to conclude in 1982 that:

[while Mrs. Gandhi's position within her own party has never been greater, nor has the party ever been as dependent upon a single leader to sustain its electoral support, Mrs. Gandhi continues to fear the emergence of any independent center of political power.

Mrs. Gandhi has attempted, with mixed results, to dominate the Congress organisation both at the centre and state levels. In 1972, for example, she was able to "dislodge" some of the Congress state bosses and replace them with her own men "who were almost exclusively dependent on the centre" (Graves, 1976: 875). However, when the Prime Minister's handpicked Chief Ministers have been unable to develop their own bases of support -- Gundu Rao of Karnataka is a prime example -- they have not long retained their positions. On the other hand, in cases where they have developed independent power bases their "loyalty" to Mrs. Gandhi has become questionable -- as with Karnataka's Devaraj Urs -- and they have either left her Congress or have been forced out with the "result that none of the country's well-known national and state leaders has remained in Congress" (Weiner, 1982: 344 and see also Das Gupta, 1981: 160-61).

While it is certain that Mrs. Gandhi personally takes numerous
decisions in setting the policies of her government, she must delegate some authority to her cabinet ministers. For the purposes of resolving river disputes, the Minister for Irrigation has the greatest amount of contact with the disputants. The Irrigation Minister, then, may personally have some influence over the course of the dispute. Jagjivan Ram, for example, was an experienced Minister in Congress cabinets and was probably willing to force the states to come to an agreement in order to further his own political prestige. In 1976, for example, even though his draft understanding was not accepted at the August meeting, Ram appointed the two investigative committees as provided for in the draft, and the events of 1977 and 1979 showed that Ram aspired to the Prime Ministership of India.

The Irrigation Ministers since Jagjivan Ram have seemed to be "lesser lights" in the Janata and in Mrs. Gandhi's cabinets -- men who were less likely to forge ahead with their own plans to end India's river disputes. Indeed, during the time Rao Birendra Singh was Irrigation Minister (between January 1980 and January 1982), he only held one meeting to discuss the Cauvery dispute and there were no meetings while Kedar Pandey held the portfolio (from January 1982 until February 1983). There is, perhaps, an air of uncertainty in Mrs. Gandhi's cabinet -- she has shuffled it nine times since taking office in January 1980 -- which does not allow the Ministers much freedom of action (Overseas Times, 10 February 1983: 1). Myron Weiner (1982: 344) observed that "Mrs. Gandhi's cabinet is made up of political unknowns, and cabinet members know that if they attempt to build a political base of their own they will be removed."
It is in the Indian central government's economic interests to have a resolution of the Cauvery dispute. In the absence of an agreement, there are no projects in the basin eligible for foreign aid. Given the financial structure of the Indian federation, however, the central government has been, in effect, indirectly financing Cauvery Basin schemes. Even though Karnataka's projects in the Cauvery Basin have never been approved by the Planning Commission, they will have received much of the necessary capital from central coffers, as a large part of the states' budgets is made up of grants and loans from the centre. It is common practice for the states to finance loans through further loans from the central government, in effect reducing the loans to grants.

One of Karnataka's retired Chief Engineers for Irrigation, I.M. Magdum, indicated in an interview that whether or not a project was included in a Five Year Plan made little difference to its funding. However, even if the level of funding the state ultimately receives from the centre for a non-plan project is the same as for a plan project, the non-plan project's rate of funding would likely be slower. Karnataka might include a heading such as "Irrigation Maintenance" in its state budget for which it would receive allocations from the centre through the Finance Commission. This money could then be applied to the various irrigation projects in the Cauvery Basin, although if a project were included in the Plan, it would receive much more funding under "Major and Medium Irrigation Projects." There is a possibility that Karnataka diverts funds from centrally-approved projects in the Krishna Basin, for example, to the Cauvery Basin projects.
Because the central government is so closely involved with the states' finances, it loses enormous amounts of money with delays in the projects' completion. The World Bank, for example, estimated that the Cauvery Delta project would cost approximately 490 million rupees. In 1982, Tamil Nadu's Cauvery Delta modernisation plan was supposed to cost on the order of 3660 million rupees. Likewise, Karnataka's projects in the Cauvery Basin are much more expensive to complete now than they would have been five or ten years ago.

Another reason that the economic costs of the Cauvery dispute are potentially high is Tamil Nadu's level of productivity. If the dispute were to continue until Karnataka is able to do serious harm to Tamil Nadu's Cauvery irrigation system on a yearly basis, Tamil Nadu could become a chronic food grain deficit state. This in turn would result in the centre's having to provide more grain to Tamil Nadu from central buffer stocks. There is little chance that Karnataka would be able to produce enough foodgrains to offset Tamil Nadu's losses in food, especially rice, production even with its completed irrigation projects operating at full capacity because they are designed for dry crops. The net effect of this would be to make it more difficult for India to sustain its goal of self-sufficiency in food production. Overall, the potential economic costs of the Cauvery dispute are higher than the actual costs which are much lower than they were in the Krishna, Narmada, Godavari, and Ravi-Beas disputes.

The commitment the central government has shown toward resolving the Cauvery dispute has varied over the years of the dispute. In the
dispute's earlier stages, the central government took greater active interest in its resolution than in the period since the end of the Emergency. The earliest meetings, held from 1971 to 1973, were for information gathering rather than for solving the main problems of the dispute. Certainly there are no political costs in holding discussions such as these in contrast to ones where the states show little but antagonism for each other and for the mediator's proposals.

Another part of the explanation for the centre's apparent lack of concern for resolving the Cauvery dispute since 1977 lies in the changing federal politics of India. In March 1977 when the Janata party took power, its first and foremost concerns were with choosing a Prime Minister and with consolidating power. Throughout its short tenure as governing party of India, Janata was troubled by factionalism and could hardly be expected to have a river dispute far off in the south of India, where Congress dominated in the 1977 election, at the top of its list of priorities.

Janata crumbled in mid-1979 and India was under "caretaker" rule until Mrs. Gandhi's return to power in January 1980. The Congress (I) election victory resulted in another round of President's Rule in Tamil Nadu because MGR had participated in the Charan Singh government and because the Congress (I) had done very well with its DMK ally in the Tamil Nadu Lok Sabha election. Together they won 36 of 40 seats -- Congress (I) had 20 and the DMK, 16. The consequent assembly elections saw MGR's ADMK return to power in June 1980.

Despite Mrs. Gandhi's resounding election victory of 1980, her
Congress party was beset with factionalism in the state units. Her chosen Congress (I) Chief Ministers, such as Anjiah in Andhra Pradesh and Bhosale in Maharashtra, found themselves up against major opposition from within their state parties and were eventually deposed. Mrs. Gandhi also had a major problem on her hands with Maharashtra Chief Minister Antulay's scandal in 1981. The communal violence in Punjab and in Assam also represented much more pressing problems than the Cauvery dispute. Furthermore, as mentioned earlier, Mrs. Gandhi has shuffled her Cabinet so many times since 1980 that the Ministers have little time in which to develop an image in their portfolios as strong and forceful men. Thus, compared with a K.L. Rao or a Jagjivan Ram, an R.B. Singh or a Kedar Pandey would have difficulty in convincing the disputing states to come to the bargaining table let alone convincing them to accept a compromise solution of the dispute.

As neither side has evinced any willingness to compromise, the New Delhi government is faced with a brick wall of obstinacy and has likely decided that the Cauvery dispute requires more effort to be solved than it is willing to make. For the present neither Tamil Nadu, except in dry years, nor Karnataka is suffering because of the dispute. Politically it is easiest for the centre to act in the role of "unbiased mediator," as any other role would require greater political and economic commitments on its part. The cumulative evidence suggests that the central government is an unwilling and therefore an ineffective mediator.

The most frequently expressed view among my informants in Tamil Nadu and Karnataka was that it is the centre's responsibility to find a way to
resolve the dispute. Ironically, however, neither Tamil Nadu nor Karnataka accepts that the centre is unbiased. For example, neither side trusted K.L. Rao. People from Tamil Nadu felt a Telugu-speaker was unlikely to do them justice while those from Karnataka felt than an Irrigation Minister whose home state (Andhra Pradesh) was also a lower riparian (in the Krishna and Godavari Basins) with similar interests to Tamil Nadu's, could not do justice to Karnataka's claims (Interviews, Pattabhiraman, Balekundry: 22 April and 15 May 1982).

In Tamil Nadu it is common to hear the complaint that the centre is favouring Karnataka in the Cauvery dispute because it allows Karnataka to go ahead with its projects. It is also pointed out in Tamil Nadu that when Karnataka was under a brief spell of President's Rule in 1971, the state budget approved by the centrally-appointed advisors included allocations for the Cauvery Basin projects.

An opinion commonly held in Karnataka is that the centre is ignoring the state's interests because of the Tamilians' strength in numbers in important positions in the bureaucracy, and there was also the suggestion that a powerful "lower riparian lobby," primarily comprised of central officials and politicians from Tamil Nadu, Gujarat, and Andhra Pradesh, operates in the central ministries. This lobby prevents the centre from protecting Karnataka's riparian rights.

The centre has been criticised by some Karnatakans, including a Congress (I) MP, for not forcing an early solution to the dispute because in their opinion the dispute's resolution is to Karnataka's advantage and Tamil Nadu's disadvantage. The work on Karnataka's projects is going
ahead very slowly because of their exclusion from the Plan while in the meantime Tamil Nadu continues to receive the full benefits of the Cauvery River. If the dispute were brought to an end, Karnataka's projects could receive Plan funds, be completed sooner, the agriculturalists would be satisfied, and Tamil Nadu would have to accept the consequences (Interviews, Magdum, Nanje Gowda, Balekundy: 12, 14, and 15 May 1982).

While hydrologic-economic factors are particularly useful in explaining the two states' claims over the years, and in demonstrating why this type of dispute is inherently difficult to solve, they do not explain why the Cauvery River dispute remains unsolved. The central government's perceptions of the political costs of acting decisively to end the dispute and the state governments' weighing of political costs and benefits contribute more to an explanation of the dispute. New Delhi's lack of assertiveness became a hallmark of the conflict during the 1970s but is understandable in India's system of federalism where the central government's perceived need for political support from the state governments and electorate has led to its unwillingness to alienate either Karnataka or Tamil Nadu. Because of the federal government's unwillingness to act decisively in the Cauvery dispute, it has been unable to suggest an appropriate compromise that would at least minimise the states' losses (both perceived and actual), even if it does not maximise their gains.
Interestingly at a meeting in Tiruchi in October 1981, when Venkataraman was still Finance Minister, he "promised to use his good offices for bringing Cauvery water to Pudukottai District" which is south of the Cauvery Basin (IE, 21 October 1981).
Conclusion

The Cauvery River dispute is best explained in the context of federal politics in India. Assessments of the political costs and benefits account for the greatest part of the central and state governments' decisions to take particular actions in the dispute. Unfortunately, this has led to a situation where the development needs of the river basin are less important to the governments involved than political considerations. This is not to say, however, that hydrological approaches to examining a river dispute should be entirely rejected.

David LeMarquand's concept of hydrologic-economic relations does help to explain some of the manifestations of the Cauvery River dispute over the last thirteen years. When it is seen in conjunction with "locality," the emotive nature of water issues, and the extent of a centre-periphery relationship among the basin states, one may predict when and where a river dispute will arise. Once a dispute has arisen the theory will also predict many of the types of arguments the disputants will present. The theory cannot, however, predict all the arguments of a dispute nor can it predict its outcome because of intervening political factors.

The hydrologic-economic configuration of a river basin allows one to determine a number of non-political factors which lend themselves either to the resolution or prolongation of a dispute. Some
factors which tend to exacerbate a dispute include: 1) an upstream-
downstream relationship between two states with no economic benefits
for the upper riparian to come to an agreement with the lower riparian;
2) a lack of technical data on the river and/or disputes over the
validity of available data; 3) the disputants disagree over the peri-
meters of the dispute (e.g., one side includes groundwater, another does
not); 4) the disputants disagree over the dispute's terms of reference
(e.g., the definition of "inadequate rainfall"); 5) much of the river's
flow is already harnessed, especially by one state; 6) the upper riparian
state makes or will make consumptive use of the river's water; 7) where
there is an opportunity for integrated development, costs and benefits
are difficult to allocate. The variables mentioned above not present
in the Cauvery dispute are 2) and 7), and the latter only because there
are no longer any integrated development opportunities in the Cauvery
Basin.

Some factors which make river disputes easier to solve are:
1) a number of integrated development opportunities which lead to
greater benefits for all parties than if projects were pursued singly;
2) the conflict is not upstream-downstream; 3) technical information on
the river is available and acceptable to all parties. Only 3) is even
minimally present in the Cauvery dispute.

Not only are the two states in an upstream-downstream relationship
with no joint development opportunities, Tamil Nadu uses most of the water.
This adds up to a zero-sum situation in that Karnataka's gains represent
Tamil Nadu's losses and if Tamil Nadu maintains its current share of
water, it will deny Karnataka its development potential in the Cauvery Basin. Moreover, because of the differing pace of development in the basin, the two states are in a centre-periphery relationship to one another. Karnataka has seen Tamil Nadu's development plans forge ahead while its own were hindered by its lack of resources and its historical political inequality with Tamil Nadu. Karnatakans are jealous of Tamil Nadu's more advanced development and now that they have the economic and technological capacity, they are unwilling to have their sovereignty over the Cauvery River compromised—Tamil Nadu will no longer be able to dictate terms to Karnataka in the Cauvery Basin.

Helen Ingram's concept of "locality" does not entirely fit the Cauvery Basin states. In Karnataka the predominant view is that the Cauvery River only benefits a small fraction of the state. In Tamil Nadu the most common perception is that the Cauvery benefits the state as a whole despite its "locality" because of the river's great economic importance. "Locality," then, not only varies with topography but with a river's economic importance outside its basin.

The arguments that Tamil Nadu and Karnataka have put forward over the years of the dispute have been quite consistent with expected legal, technical, and economic arguments given the hydrologic-economic factors governing the Cauvery Basin. Furthermore, the points raised by the two states have remained remarkably constant over the years. Karnataka and Tamil Nadu are as far apart in their stances in 1983 as they were in 1970.

Both states are reluctant to make a commitment to resolve the
dispute through signing an agreement. In Karnataka and especially in Tamil Nadu, powerful lobbies make demands for Cauvery water and for development projects in the Cauvery Basin. State leaders have little choice but to heed these demands and show the lobbies (agriculturalists, contractors, Public Works Department) that their interests are being protected. While it is possible for political factors to mitigate against the hydrologic-economic variables, in this case the political factors exacerbate them.

LeMarquand used the concept of hydrologic-economic relations to help analyse river disputes in the international arena which means that the role of the central government in an interstate conflict is not explained. The federal government's role may be seen in two ways: the actions it takes and the state governments' perceptions of not only its actions but the actions it may take in the future.

In Karnataka's case LeMarquand's hydrological analysis would not have predicted that the state would be as tenacious as Madras in the Cauvery dispute. The river is not of as great economic importance to Karnataka as it is to Tamil Nadu, both currently and potentially. Moreover, Karnataka is the upper riparian state which means there is nothing Tamil Nadu could do to its part of the river to harm Karnataka's development potential in the Cauvery Basin.

Why, then, does Karnataka bother to make such a strong case for the protection of its riparian interests? There are two major reasons. The first is that Karnataka's political leaders, in order to protect and/or promote their bases of support among agriculturalists, must in no un-
certain terms show that they are guarding agriculturalists' interests. The second reason is that because Karnataka is a state in a federal nation it cannot assume that despite its being the upper riparian state, it will have ultimate control over the river. The central government or a tribunal could rule against Karnataka so that its water needs are not entirely met. While in India's current system of federal politics the central government is in need of political support from the states, it does have authority over them.

The motivations behind the central government's actions are less easily explained than the states' arguments and posturing in the dispute, although it can be said with certainty that it is also driven by political considerations. It is impossible, however, to say for certain how the central politicians calculate their political gains and losses in the Cauvery dispute. Karnataka may have been a Congress state, but Mrs. Gandhi has always found political support from the regional parties in Tamil Nadu, and her own support is on the increase there. Little evidence can be found for an argument that the central government has favoured Karnataka in the dispute. Overall, the differences in governing political party between Tamil Nadu and Karnataka and Tamil Nadu and New Delhi seem to have had little effect on the dispute.

Because the central government is unwilling to alienate either Tamil Nadu or Karnataka by trying to force the states to accept an unpopular solution of the dispute, it has become an ineffective mediator, and it will not choose to become an arbitrator. The central government estimates that its political costs of acting decisively to end the dispute
are high. Given the existing hydrologic-economic relationship of the basin states there is a zero-sum situation which makes it virtually impossible for the centre to resolve the dispute without the emergence of a "loser." The centre does not want to create a "losing state," thereby either depriving itself of support in one state or foregoing the opportunity to build support in the other.

The centre's perceptions of political costs changed during the Emergency. The government's own propaganda was heavily oriented to economic progress in India and with more authoritarian rule, its estimates of the political costs to end disputes decreased. During the Emergency the centre saw that the political costs had lessened while the economic costs of allowing river disputes to continue remained high. It was therefore more willing to act and was also more effective in that two disputes were resolved and a third was substantially resolved within a few months of one another.

It is also of particular importance that Karnataka's Chief Minister Devaraj Urs professed a willingness, behind closed doors, to accept the centre's 1976 draft agreement. The new political situation in India with Indira Gandhi's Emergency regime led him to reassess the costs and benefits of accepting an agreement. This underscores the importance of understanding federal politics in order to understand hydrological politics fully.

The centre's general unwillingness to act decisively in the Cauvery and other river disputes begs the question of why the New Delhi government bothers to act at all. Here again various actors' perceptions...
of political costs and benefits become important. Constitutionally, the onus is on the centre to help resolve disputes. This has led the states to put the responsibility for settling their conflicts on the federal government because in that way their politicians can place blame for unresolved disputes and unfinished projects on the centre. Therefore, the political costs to the centre of not acting at all are higher than its taking ineffective action in a dispute although admittedly the latter leads to few tangible benefits for the federal government.

It is within the centre's power to end river disputes by making financial rewards to the state or states which agree to give up part of their claims to the water but it is unlikely to do this for fear that states involved in other disputes will also come to demand financial rewards for settling their conflicts. Moreover, in upstream-downstream conflicts, which are often seen in zero-sum terms by the disputants, the centre's own resources would be heavily taxed if it were to try to "buy" a resolution of the dispute.

The central government party's concern for its image involves more than anxiety over distributing financial rewards. Because the centre has to act as a mediator in so many interstate disputes, it tries to maintain an image of neutrality. In a single dispute it is important politically for the centre to maintain at least a veneer of neutrality or be faced with charges of favouritism from one and, ironically, perhaps all the disputants as has happened in the Cauvery dispute. In this way, the central government may find itself emerging from interstate disputes as a scapegoat.
No river dispute in India has been solved without years of fruitless discussion, but it is likely, however, that the centre is less concerned with finding a solution to the Cauvery dispute than it has been with solving other major upstream-downstream river disputes in India (Krishna, Godavari, Ravi-Beas, Narmada) because the Cauvery is one of the most highly developed rivers in India. This is an important difference between the Cauvery and the other four disputes discussed in Chapter Two. In all four cases the economic costs were extremely high and for three of the disputes tribunals had to be appointed because it was politically impossible for New Delhi itself to aid in the resolution of the conflicts. This leads to the important conclusion that in disputes where the economic costs are particularly high, the centre will be willing to take more decisive action to end the dispute, even if it means having a tribunal adjudicate it.

Another difference between the Cauvery and other river disputes is the air of uncertainty. With the other four disputes, it was clear that a lack of agreement would have more and more severe economic ramifications as the years go by. In the Cauvery dispute there is a chance that upon completion of its major and medium irrigation projects, Karnataka will be unable to hold back enough water from Tamil Nadu to harm the latter's interests. In this case the major problem of the conflict will be solved. It is more likely, however, that the economic costs of the Cauvery dispute will increase over the years which should lead to a greater willingness on the centre's part to resolve the conflict. For the moment, however, both sides' needs are being substantially met and so it is politically easier for the centre to be less than assiduous in pur-
suing a solution of the conflict.

Even if the centre is willing to work diligently to end a river dispute, it does not mean that the disputants themselves will be willing to compromise. In all the concerned states, there will be political pressure on the state governments to make demands for a particular share of a river's water. The state governments must heed their supporters before the central government if they want to stay in power. Thus, while the federal government was able to force Punjab to accept a resolution of the Ravi-Beas dispute during the Emergency, the state government denounced it, and a resolution could not be found that was acceptable to Punjab and its agriculturalists for another five years.

It is important that when the central government decides it wants a dispute resolved, it has the mediation skills commensurate with the task. The centre's mediators must be trusted and the tentative solutions they propose respected. Representatives of the central government must be extremely skilful diplomatically, have a close understanding of not only the technological and socio-economic factors of the dispute but also the political variables important to the state governments, and be able to table proposals in such a way that all the basin states involved will eventually accept them. In the Cauvery dispute because Tamil Nadu is, by far, the river's largest user, it is reasonable that the state be asked to curtail its use so that its co-basin states might also have a chance to develop their irrigation potential. However, the centre clumsily framed such a suggestion in the 1974 draft and again during the Emergency when it was most concerned with resolving interstate disputes.
In the 1976 draft understanding, Jagjivan Ram suggested that Tamil Nadu should modernise its irrigation system (an expensive venture) so that it can give away ninety-five percent of the water it saves!

The Cauvery River dispute lends support to the notion that Indian federalism is best seen as a system in which only "co-operative bargaining" can take place. While it is true that the central government is in a dominant position vis-a-vis the states, the centre cannot force its policies on them at will because of its need for support from the state governments and electorate. There must first be some proof to the state governments that it is in their political best interests to go along with central government initiatives.

In the final analysis, the Cauvery River and other disputes in India are most thoroughly explained by an assessment of the main actors' perceptions of the political costs and benefits of acting in a particular way. The cumulative evidence from the Cauvery dispute points to a conclusion that the main reason, outside of hydrological problems, that interstate river disputes are so protracted is that each government, each responsible to a different electorate, weighs the political costs of acting in a different light thus preventing resolutions acceptable to all parties from being found. Unless an arbitrator is appointed to adjudicate a dispute, its resolution will only be arrived at when there is a significant change in one or more of the governments' assessment of political cost-benefits that leads to a convergence in what they accept as a compromise resolution of the dispute.

The Irrigation Commission (v. 3.2: 384) reported in 1972 that
future development of irrigation in the Cauvery Basin is closely linked with a settlement of disputed issues between the contending states. As in other areas of India, the population in the Cauvery Basin is rapidly growing and with its expansion, food production must keep pace. Even though the Cauvery River is one of the most fully developed and best-regulated of all the Indian rivers, there is great potential for further development in the basin. The Cauvery Delta is still in need of a major modernisation effort and other Cauvery Basin irrigation systems in Tamil Nadu also require updating. In Karnataka the canals off the Krishnarajasagar Dam require some modernisation work and canals and channels must be built in the command areas of the newer projects in the basin.

As Karnataka completes its projects in the Cauvery Basin and its maximum needs become known in the years to come—about ten to fifteen years according to most estimates—the viable options for solving the dispute will become narrower and narrower because the centre will not want to prevent Karnataka from utilising its completed irrigation projects to their full extent.

The optimal solution of the Cauvery dispute would see Tamil Nadu accept that it must give up a certain amount of water to Karnataka. An agreement which does not concede at least some of Karnataka's demands would be impossible to enforce on the upper riparian state. In order to ensure that the Tanjavur Delta is not made to suffer as a result of the agreement, the Indian central government should take action to promote the modernisation of the delta's irrigation system and help to finance it. In 1970, the World Bank offered to lend aid to Tamil Nadu
for a modernisation project in the Cauvery Delta. One would hope that the Indian government will persuade the World Bank to come to Tamil Nadu's aid once again.

The dispute will be settled when Tamil Nadu admits that the optimum agreement it may accept will result in it receiving less water from Karnataka than it has in the past but that a concerted effort to modernise the delta will likely compensate for the loss. Unfortunately, that is unlikely to happen before Karnataka is able to retain so much Cauvery water for its own uses that chronic water deficits occur in the Tanjavur Delta. This will cause the Tanjavur landholders to pressure the Tamil Nadu government to protect their interests by accepting an agreement to end the conflict. In turn, the Tamil Nadu government will ask the Government of India to negotiate a compromise which will bring the Cauvery River dispute to a satisfactory resolution.
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S.R. Bommai, President Karnataka Janata Party (14 May 1982), Bangalore.

H.M. Channabasappa, Chairman Irrigation Advisory Board, Karnataka (17 May 1982), Bangalore.

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R. Ganesan, Chief Technical Officer of Interstate Rivers, Tamil Nadu PWD (24 April 1982), Madras.

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P. Nedumaran, Leader Tamil Nadu Kamaraj Congress (2 April 1982), Madras.

Padmanabha Rao, Assistant Executive Engineer, Water Resources Development Organisation Karnataka (14 and 15 May 1982), Bangalore.

M. Pattabhiraman, Assistant Editor, The Hindu (22 April 1982), Madras.

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Clause 10 of the "Final Agreement Between the Mysore and the Madras Government in Regard to the Construction of a Dam and a Reservoir at Krishnarajasagar." 18th February, 1924.

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 a storage capacity of not higher than 112 feet above the sill of the under-sluices 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 million cubic 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 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 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, Lakshmanathirtha 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. The 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 93,500 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 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 month as may be convenient.

(vii) The Mysore Government on their part agree that extensions 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 conceded 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% 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 utilised by the Mysore Government according
to their convenience from any other Reservoir hereafter to be con­
structed, and the storage thus released from the Krishnarajasagara
may be utilised 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 utilised shall be framed after taking into considera­
tion 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 exe­
cution 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 reconsidera­
tions.

(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 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, Amravath or Noyil 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% 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 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.

Draft of the understanding reached and agreed upon by the states of Karnataka, Kerala, and Tamil Nadu at the meeting held at New Delhi on 25 August, 1976 regarding use and development of Cauvery waters.

It is agreed that optimum use be made of the waters of the Cauvery. It is further agreed that there is scope for effecting economies in present use of Cauvery waters without detriment to existing ayacuts and that maximum possible economies in the present uses of Cauvery water be effected. Waters thus saved shall be used to provide additional multipurpose benefits. It is recognised that there is a need for integrated operation of the reservoirs in the basin and for regulation of releases from various reservoirs to ensure the optimum utilisation and equitable distribution of waters with a view to achieving aforesaid objectives, it is hereby agreed as under: --

1. Existing utilisation of Cauvery waters is agreed as 671 TMC, comprising 489 TMC by Tamil Nadu, 177 TMC by Karnataka, and 5 TMC by Kerala.

2. In a normal year, existing areas under irrigation shall be fully protected.

3. In lean years, the manner of sharing available waters shall be worked out by a Committee of representatives of the Central and State governments and submitted for consideration at the next Chief Ministers' meeting.

4. This Committee shall also work out the quantities of surplus waters presently available for use. The waters surplus, over the existing use of 671 TMC shall be shared in the ratio of 30:53:17 among the States of Tamil Nadu, Karnataka, and Kerala.

5. Tamil Nadu and the Karaikal region of Pondicherry shall take steps to effect a saving of 100 TMC from present uses and Karnataka shall take steps to effect a saving of 25 TMC from its present use by various measures such as modernisation of the existing irrigation systems, improvement in water management, reducing seepage losses, etcetera.

6. The savings shall be effected within a maximum period of 15 years. The Centre shall devise ways and means to provide necessary outlays (made up of States' contributions and Central assistance) in the Plan for improvement measures aforesaid. At the end of five years, Tamil Nadu shall save 20 TMC and Karnataka, 5 TMC. In the sixth year, a review will be made of the progress achieved by the three Chief Ministers and the Union Minister of Agriculture and Irrigation who
will lay down a programme for the next five years and give appropriate directions.

7. At the end of 15 years, savings will be distributed amongst the three States thus: Tamil Nadu 4 TMC, Karnataka 87 TMC, Kerala 34 TMC

8. Out of the quantity so distributed, 2 TMC each shall be allowed for industrial and domestic water supply.

9. Both the States of Karnataka and Kerala shall be allowed to use quantities of water allocated out of the savings on such projects as they may consider necessary for efficient use of water in their territories.

10. A Cauvery Valley Authority consisting of one Irrigation Engineer from each of the three States and an Irrigation Engineer of appropriate status not belonging to any of the three States nominated by the Central Government as Chairman shall be constituted.

11. The functions and rules of procedures of the Cauvery Valley Authority as drafted by a Committee of Secretaries of the three States shall be considered at the next meeting of Chief Ministers.

(Source: Tamil Nadu, Public Works Department, "Note on the Cauvery Water Issue" (Madras, 1982), no. page no.).
LIST OF ABBREVIATIONS

ARC  Administrative Reforms Commission
CFFC  Cauvery Fact-Finding Committee
CVA  Cauvery Valley Authority
CW & PC  Central Water and Power Commission
IE  Indian Express
ILA  International Law Association
KRS  Krishnarajasagar Dam
PWD  Public Works Department
TN  Tamil Nadu
WRDO  Water Resources Development Organisation
GLOSSARY

Anicut: Dam or weir of stone and masonry functioning to raise and divert water from a river or stream into an irrigation supply channel.

Ayacut: Irrigable land.

Basin state: Part or all of a basin state's territory is within the river's basin or watershed but the territory need not touch upon the river or its tributaries, as opposed to a riparian state whose territory does touch upon the river or a tributary.

Command or culturable command: Irrigable area of an irrigation system.

Dependability: Refers to the minimum volume of river flow to be expected in a given percentage (50%, 75% most commonly used) years for which flow data is available. If, for example, river supply is equal to a minimum of 350 TMC in 18 of 24 years and equal to 400 TMC or more in 12 of 24 years, the dependable water supply based on 50% dependability = 400 TMC and based on 75% dependability, 350 TMC.

Duty: The area irrigated during a base period (cropping season) divided by the mean supply of water utilised in cusecs (cusec = 1 cubic foot per second). Low duty indicates an inefficient irrigation system wherein too much water is needed to irrigate a certain amount of land.

Filter point: A shallow well.

Groundwater: Water found underground in porous rock strata.

Kuruvai: Early rice crop planted in June and harvested in October.

Live storage capacity: The capacity of a reservoir excluding that volume of water which is not used for operational purposes.

Regulator: A structure on a canal designed to regulate the water level or discharge or both by means of adjustable shutters. Tailend regulators are the last regulators of the irrigation system.

Samba, thaladi: Later crops of rice. Samba is planted in July and harvested in January; thaladi is planted in October and harvested in February.

Semi-dry crop: Refers to any crop which does not require large quantities of irrigation water. This term is used to distinguish crops like wheat and cotton from wet crops like paddy and sugarcane.
Surplus water: A river's yearly average volume of flow not currently used and available for allocation.

TMC: Volume of water equal to one thousand million cubic feet. A standard measure of water flow used in India.