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# Role of Politics and Economy in the Worsening of Water Related Problems in Kerala, India

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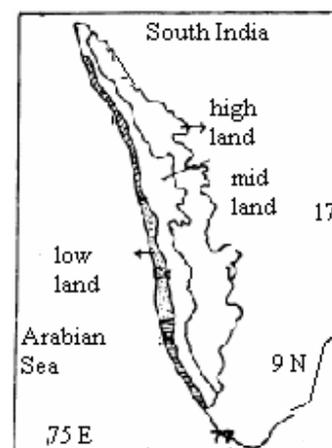
**Abstract:** Globally, water resources are being fast depleted or deteriorated, while the demands are increasing manifold. Water resources management is becoming a greater challenge in the developing countries with changing environmental, political, social and economic conditions. Politics and shadow economy are among major hurdles in resource management, making implementation of projects and policy guidelines often a failure. The State of Kerala in India is rich in water resources, but it experiences serious seasonal water shortages because of inefficient water conservation and management practices, an after effect of the slow government machinery and corruption. Delays in project completion lead to substantial increase in costs and many projects are left half the way, lacking finance. Disputes over water sharing among different users and upstream-downstream users continue without amicable settlements, just because of political reasons. Human impact on the resources is tremendous in the State. There are rules and regulations to avoid degradation of resources from waste and chemical input, sand quarrying in riverbeds and catchments, deforestation in watersheds and overdraft of groundwater. These rules and judicial orders become farce to those with strong political and financial influence. An appropriate and frequently updated water policy, a strong political will to implement policy guidelines and suggestions, and efficient measures to prevent misappropriation of money allotted to water related projects can help overcome water crisis in Kerala.

**Keywords:** Water Scarcity; Kerala; Management; Politics; Shadow economy

## 1. INTRODUCTION

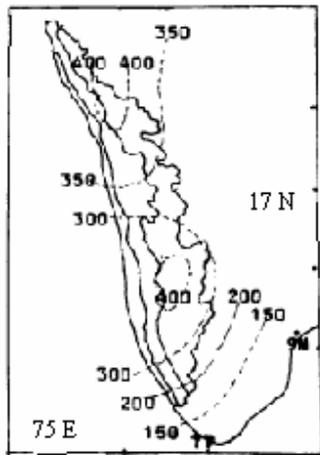
The State of Kerala is a narrow strip of land with a length of 590Km and average width of 65Km that lies in the southwest coast of India, parallel to the bordering Arabian Sea. Though its area is only 38,863Km<sup>2</sup>, which is about 1.2 percent of the total surface area of India, it supports a population of more than 32 million, which is 3.1 percent of the total Indian population [Census of India, 2001]. The disproportion between its area and population is reflected in the density of settlement. The present population density is 820 persons/ Km<sup>2</sup>. This is a challenging factor in providing adequate water supplies.

Kerala consists of three distinct geographic divisions (Fig. 1): 1. The high lands, which slope



**Fig.1 Kerala - Physiography**

down from the Western Ghats Mountain with an average height of 900 metres and is a plantation zone. 2. The midlands lying between the Western Ghats and the western lowlands, made up of undulating hills and valleys and is a rich cultivation area. 3. The low lands or the coastal area made up of river deltas and backwater. Orography of the Western Ghats that fully border the eastern side of Kerala produces heavy rainfall of more than 300cm in the State (Fig. 2), 270cm of which falls during



**Figure. 2 Kerala – Rainfall pattern**

June - December. Northern parts of the State receive most of the rainfall from the southwest monsoon whereas the northeast monsoon is also pronounced in the southernmost parts. Intensity of rainfall ranges from around 2cms/rainy day in the southern districts to around 3cms/rainy day in the north [Nair, 1987]. The State is rich in water resources, with 44 rivers and their tributaries and other freshwater bodies. These rivers have an average length of 80Km and a watershed of 700 Km<sup>2</sup>. In spite of this wide network of water bodies, Kerala faces serious water shortages on certain occasions as a result of irregularities in temporal and spatial distribution of rainfall, slope of the terrain and improper measures of conservation and management of water resources. Water related problems in Kerala are multi-faceted and it ranges from its peculiar geography to management and politics, which are briefly mentioned below.

### 1.1 Physiography and Climate

Being a humid tropical region, rainfall over Kerala is of high intensity and highly seasonal in nature. Most of the rainfall is during the monsoons. Winter monsoon is the end of active rainy season, which is characterised by thunderclouds that release all the rain in few minutes, giving less time for infiltration. The pre-monsoon clouds also are of similar nature. All the rivers originate in the Western Ghats Mountain region. Steep slope of the terrain permits the water to flow fast to the Arabian Sea before it could be stored or effectively harnessed. Large storage systems in their watersheds are not safe and advisable in the steep slopes, as small earthquakes have been reported recently.

## 2. THREATS TO WATER RESOURCES

### 2.1 Deforestation

Large-scale deforestation in the Western Ghats around the watersheds and introduction of plantation crops in highlands replacing the natural vegetation reduced the storage capacity of soil and resulted in surface soil erosion in watersheds and sedimentation in rivers. This affected summer flow in rivers and some of the once perennial rivers and rivulets became seasonal in the last few decades.

### 2.2 Sand Quarrying and River Bank Agriculture

Sand quarrying in rivers and watersheds are killing the rivers. Such activities lead to bank erosion, lowering of water table and create several environmental problems. Ground water level in some of the watersheds has gone down by nearly one metre in the last two decades. Agricultural practices in the riverbanks (and also inside the dry riverbeds) during non-rainy months also add to bank erosion and sedimentation in rivers.

### 2.3 Degradation of Water Resources

All the 44 rivers in Kerala are highly polluted by untreated domestic and industrial wastes and pesticides and fertilizers from the agriculture. Most of the industries are near the thickly populated riversides, often near cities and towns. There is no efficient water treatment system in industries and cities. Pollution level in some of the sites is far above permissible limits. Water quality in River Chitrapuzha that surrounds Kochi, the largest city in Kerala is among the poorest in India.

## **2.4 Land Reclamation and Construction**

Sand filling of ponds, farmlands, wetlands and other water bodies affects natural water flow and groundwater recharge. Construction of new roads and buildings has blocked many canals, which were important for navigation and freshwater. Vast areas of wetlands and paddy fields have been converted into settlement and industrial areas in the post-independent era.

## **2.5 Increasing Urbanization**

Shrinking areas of paddy fields, higher wages, and new system of education that doesn't give practical applications of what one learns reduced rural unemployment and promoted more urbanization. Most of the people diverted from traditional jobs, which were mainly caste-based. Cities in Kerala are not well planned to accommodate large population and therefore water supply becomes inadequate and often interrupted. Providing water in sufficient quantity and in time is increasingly becoming a problem. Competition in suburban areas where there are more settlements of the poor leads to conflicts. Dimensions of drainages are insufficient. Domestic wastes often block drainage channels and waterways. Water logging not only affects availability of safe water, but also creates serious health issues.

## **2.6 Overdraft and Misuse**

Overdraft, careless use and improper maintenance of delivery system contribute much to the water scarcity. Water used for gardening and even washing vehicles in big households use several times the water needed for sustaining the life of a poor family. Number of deep bore wells is terribly increasing. Overdraft of groundwater has invited salinity intrusion far inland in certain locations in coastal areas. There is no way of accounting the theft and illegal use of water.

## **2.7 Inefficiency in Planning and Management**

Government machinery is very slow and there is a lack of cooperation among the different departments involved in project implementation. This causes unnecessary delays in project completion. One

major irrigation project in which misappropriation of millions of money was suspected was recently given up half the way after two decades of arguments and legal fight among political parties. One major project to protect the wetlands agriculture in central Kerala is now creating adverse effect. There was much deviation from the original project proposed by the Netherlands Agency. This not only affected targeted rice production, but also deteriorated the surface and groundwater in the whole wetland area, as natural flushing process was obstructed by the artificial barrage.

## **3. IMPACT OF SHADOW ECONOMY AND POLITICS IN WATER RESOURCES MANAGEMENT**

The large-scale inequality in finance and the widening gap between the rich and poor leads to social issues, which is reflected in water resources also. One fifth of the population of Kerala is working outside the State and a good number of them are outside India, especially in Arabian Gulf countries. Conversion rate of the currencies make some families very rich. There is also a class including politicians and government officials who collect money through illegal means. In addition, liberalization policy opened doors to more private industries and salaries in some of them are as competent as that of an outside agency. Their changing life style of the elite class needs supply of water many times that required by an ordinary family. About 40% of the water is consumed by a class of 10 % of the population and for the millions of poor, safe water and its timely availability is far away from reality [Malayala Manorama, 2004]. Careless use and misuse of water are often part of modern and lavish life.

Bribery and corruption have become almost part of the society in daily life. Some officials in the Government sector are very corrupt. For the timely action on domestic water supply and maintenance, the government staffs ask special money. In all the water related projects, misappropriation has become very common and several judicial enquiries and legal procedures are going on. Such corruption makes delays in projects and creates necessity of more investment than estimated. Some of the projects were abandoned half the way, after spending millions. A number of major and medium irrigation projects taken up by the State

Government as far back as forty-five years still remain incomplete, leading to high cost overruns and forcing the Government to abandon many of them. There are 16 projects such as the Kallada (started in 1961), Pazhassi (started in 1964) and Kanhirapuzha (started in 1961) that remain incomplete mid-way. The delays have escalated the costs of many of them has multiplied 50 times, without commensurate increase in irrigation potential [Nair, 2002]. Though the reports on officials being caught red-handed while accepting bribes, the social evil still continue uncontrolled. The vigilance cases registered in water related projects include all classes of officials, including ministers. Fifty-three vigilance cases have been registered about irregularities in the Kallada irrigation project alone. In one case the accused have been punished. Enquiry in 17 cases has been completed. In 11 cases, charge sheets have been submitted to the courts [People's Democracy, 2001]. In January 2002, the Vigilance Special Court sentenced four former engineers and a private contractor to four years' rigorous imprisonment and a fine for causing a total loss of about Indian Rupees 2.2 Million to the exchequer in the execution of works relating to the Project. The prosecution case against the engineers was that they had hatched a conspiracy to make exorbitant payments to the contractor for the blasting and removal of laterite stone after drawing up a supplementary agreement though the contractor was bound to undertake the same work for a much lower rate as per the original agreement [The Hindu, 2002].

Interests in water resources projects are sometimes more money motivated than development. Seeking project assistance from external agencies is considered as a new development strategy and all local bodies are eager to attract big externally aided projects in the name of social security [Ramadas, 2004]. Through agencies for contracts for the construction and maintenance and commission from the purchase of raw material or equipment officials and politicians gain a lot. The competition for acquiring the reclaimed land, in real, relative's or proxy names is really astounding.

Political interference in all sectors makes implementation of rules and regulations difficult. There is ban on sand filling of paddy fields and wetlands and control on sand mining and use of deep bore wells. But, in all the rules, there are loopholes for the rich and politically influential people to escape. As a result, area of paddy fields

has been largely reduced, discouraging farming. The State now depends on neighbouring states for food and vegetables. Shrinking paddy fields and disappearing public ponds and wells affected a large population that depended on local water bodies to sustain their life. Higher wages discouraged marginal landowner's from cleaning the ponds or wells in their premises. Some political parties persuaded the workers to demand unjustifiably higher amounts. This, in turn gradually created rural unemployment. Government recently introduced strong restrictions in sand quarrying and land reclamation. Sand quarrying needs a licence that is to be issued for a specific location for a specific dimension that doesn't affect the environment much. In reality, no regulations are practiced when scientists, local administration and government officials become more and more corrupt. Levelling of wetlands and paddy fields also require government sanction. Sanction is given to fill few square metres of land that is certified not suitable for agriculture and for those who has no other piece of land available for house construction. Many people first get the sanction with the help of fake documents and money and fill extensive area, just with a business mind. As a result, water is becoming a scarce resource even in rural areas. Similar forces play in the large-scale deforestation in watersheds.

Industries do not always obey rules and regulations of the government or the pollution control board that affect their production. They are clever to secure safety award from certain agencies to escape through the gaps in law and also to make officials and political leaders silent with gifts or money. Local people's fight with a giant multinational soft drink company against overdraft of groundwater is still continuing in a rural area 'Plachimada'. Water level in the whole village is going down fast and there is a government ban on the company to use water above a limit. But, still the company has not responded to the official orders. Big Companies such as The Hindustan Paper Corporation, Mc Dowell, and a number of small and large factories around the metropolitan city of Kochi release tremendous amount of poisonous chemicals into the rivers Muvattupuzha and Periyar [Nair, 2004].

Inefficient management of water is the most important hazard in water related development activities. Appointment of staff or members is based on political pull, money and caste. As a result, there is the lack of really skilled administrators or

technicians. Many of them do not have the ability to assess the situations or to foresee few years ahead.

There exist disputes over water sharing among different regions within the state and also with neighbouring states. Politicians and representatives of the ruling parties, especially of the decisive ones in the allies arrange schemes to provide water to their regions of interest, diverting water from really needing surrounding areas. This occasionally results in violent protests.

Water dispute between Kerala and the east lying State Tamil Nadu is worsening. Tamil Nadu lies in the rainshadow region of the Western Ghats mountain and rainfall there is less than one third that of Kerala. Kerala is not willing to sign new agreements for sharing water or to renew the old agreements. Though the state receives three times global average rainfall and majority of the water is wastefully flowing into the sea, it claims that there is no surplus water available for sharing. It is quite unfortunate that the national water policy of India doesn't give any guideline for amicable settlement of water disputes. According to the constitution of India water is a state matter and Central administration has limitations in interfering. Any amendment is not easily possible, as the Government is supported by political parties of regional interest. Representatives from water rich regions always oppose any suggestions not of their regional interest.

#### **4. CONCLUSIONS AND SUGGESTIONS**

Population of Kerala and associated needs in water are fast increasing, whereas the resources are fast depleting. Management and conservation of water resources become more and more difficult and complicated.

What Kerala needs is an appropriate water policy at the state level and in agreement with the national water policy of India. Water development projects are to be completed time bound. There should be an effective mechanism to monitor this, with transparency in all dealings. Proposals for new projects should be considered only after completing the ongoing major ones. State has to concentrate on minor and lift irrigation projects which will have low gestation period as well as cost. Active public participation in development committees can help avoid misuse of money and corruption to a certain extent. For this, facilities and financial freedom may

be provided to the committees under the panchayats/municipalities and their wards, the lowermost level of administration where peoples' cooperation is already available as 'neighbours gathering'. They can be trained to spread awareness in local level water conservation such as rainwater harvesting and enhancement of groundwater recharge at houses, cleaning of public wells and ponds, afforestation and so on. To avoid the overuse and misuse, water may be priced slab-wise and water must be provided free to the extreme poor. Traditional methods of water conservation and agriculture are to be revived and initiated from the domestic level. Such methods are environment friendly and involve nominal expenditure and capable of solving problems associated with regional water scarcities. An example is the making of heaps of sand to trap water at the ending stage of rainy season to enhance infiltration, percolation and groundwater recharge. These methods became uncommon mainly because of hiking labour costs and change of particular classes of people from traditional jobs. Government should promote use of small machinery by providing some subsidies on purchase. Another fascinating and significant ancient tradition of conserving land and water is protecting patches of forests and water bodies in the name of local deities. The 'sarpa kavu' (Snake forests or sacred groves), the miniature forest to worship holy snakes (and certain other deities) was once an integral part of agricultural plots and many households in Kerala and they still exist in isolation. This ecosystem consists of many species of trees, shrubs and rare herbs of high medicinal value. A well-protected pond, which helps a lot in recharging and preserving water, is an essential part of this forest. Every year, there use to be 'puja' (offerings) to the snakes and deities and before offering 'puja' the ponds are cleaned. Quality and quantity of water in nearby wells are largely influenced by this ecosystem. Felling of the forests and filling of ponds have resulted in falling water table and added to water shortage in non-rainy months [Nair, 2003]. The State should take necessary measures to protect this rich ecosystem by providing incentives to the people who preserve it.

The State needs a leadership with strong and impartial political will to implement rules and regulations. In the present scenario, development requires private participation and for that the political leadership and trade union leaders should compel the militants workers opposing privatisation to accept the ground realities. The taxpayer should be more vigilant and reactive to social evils like

corruption and learn the meaning of real democracy where power is basically vested on the voters.

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