

WATER

conserve it or perish



Mylapore Kapaleeswarar Temple Tank.

Pic. V.J. Rajan

Front Cover Picture :

The centuries old Kapaleeswarar temple tank was never dry within living memory, and it is only during the past 4-5 years it has been steadily drying up, and is now absolutely dry. Efforts to de-silt it appears to have back-fired. According to the senior priest in the temple, Dr. S. Visvanatha Gurukul, M.A., Ph.D., the original inlets into the tank have been closed. The construction of high rise buildings around the tank and the installation of bore wells pumps have sucked the ground water and has sent the water table down by several metres, and consequently the tank has dried up. We don't know if the tank will ever fill up.

Back Cover Picture :

1. Another view of the Kapaleeswarar tank.
2. View of the dry Chitrakulam tank in Mylapore.

[Pictures : V. J. Rajan

W A T E R

CONSERVE IT OR PERISH

V. J. RAJAN,
Hony. Secretary

MADRAS NATURALISTS' SOCIETY

**36, Fourth Main Road,
Raja Annamalaipuram, Madras-28**

Phone : 457 253

DEDICATION

This booklet is dedicated to the youth of the country whose future is at stake.

Water - Our Precious Heritage

Water is one of the greatest blessings conferred by Nature, and India is fortunate in being one of the wettest countries in the world. An average of 170 cms. of rainfall per annum, is received by the country but only about 10% of this is used and the rest goes into the sea. Most parts of the country receives its rainfall through the south west monsoon during June to September while the southern parts of the country gets its rain through the north-east monsoon in October to December also. Nature had, in its infinite wisdom, provided the country with vast tracts of forests that can hold back the monsoon rain water. Forests provide a layer of decaying organic matter of leaf-litter and the deep roots of the lofty forest trees makes the soil structure conducive to infiltration of the rainwater, deep into the subsoil, and thus recharging the subsoil ground water table, ensuring a perennial flow of water in the springs and rivulets in the forests. From an uncut, ungrazed and unburnt, forest rarely will any water emerge as surface flow even during the heaviest rain. The undisturbed leaf litter will soak up the rain water and channel it downwards. Thus, forests prevent runoff of the rain water, increases its infiltration into the ground and reduces soil erosion.

Unfortunately we are injudiciously destroying our forests to provide for our ever growing population, little realising that, for short term gains, we are causing long lasting and possibly irreversible environmental damage.

From ancient times, India had many ponds, tanks, marshlands or wetlands, which collected rainwater, helped in re-charging ground water, for use in non-monsoon periods. Unfortunately again, the pressure of population in towns and cities have forced the civic authorities to fill up the ponds and tanks with refuse and rubbish to provide for living space for the ever increasing population and migrants to the cities and towns from the rural areas. Wetland and low lying marshland ecology is not properly understood and so they are being drained or filled up to provide for housing food, fuel, fibre or forage for our growing human and cattle population. The absence of forests and marshlands has removed the checks that nature had provided against floods, and now, when we have rains, we have floods following it !

Another important part played by forests is in controlling soil erosion. Absence of tree cover, humus and grass helps in soil loss which in India is estimated to be about 6,000 million tons approximately. Tree cover now forms less than 14% of our land area against the 33% suggested by our National Forest Policy of 1952.

India being a predominantly agricultural country, irrigation is vital for it. From ancient times, rivers, lakes, tanks, ponds and wells have been the traditional sources of water for irrigation and agricultural purposes. Now we are building huge dams across the course of rivers in mountaneous terrain and create artificial lakes or reservoirs and use the stored water for irrigation and production of electricity. Theoritically, these dams

should be a boon to the country. Unfortunately, in practice, it is not so. These dams have submerged many vital forests and productive lands, and displaced thousands of tribals from their forests and livelihood. The work force employed for long periods rapidly deforest the surrounding areas and the deforestation in these vital catchment areas lead to soil erosion and land slides. The resulting huge quantity of silt, debris and topsoil raises the bed level in rivers and reservoirs created by the dams. Thousands of crores of rupees spent on the construction of these dams in the hope of getting water for irrigation and electricity for over a hundred years are belied and we will be happy if these dams prove useful atleast for half of its expected life. A Government sponsored study on the silting rate in the reservoirs in Tamil Nadu has found that the silting rate in the Kundah Reservoir to be about 2.87% per year.

It is estimated that in India, the fuel-wood requirement per annum is nearly 130 million tonnes and is increasing rapidly along with the increasing population. About two thirds of this is obtained illegally from the reserved forests, resulting in the loss of tree cover and loss of topsoil. Mining, drilling and road building, especially in the fragile Himalayan region and the Western and Eastern Ghats region results in removal or modification of top soil and vegetation in the area. It is estimated that it takes nature about 500 to 1,000 years to create one inch of topsoil and one rain on the disturbed area is enough to wash off several inches of precious topsoil.

Fallen leaf litters, dead plant and animal parts in the forests are acted upon by fungi and bacteria and transform them to mineral, carbon di oxide and water. The microbes deal with the chemical decomposition of these organic and inorganic matter.

Undisturbed tropical forests like the Silent Valley, serves as repositories of natural resources of germ plasm, genetic resource banks. Many of the living plants, insects, reptiles, and other organisms there are yet to be studied and may be of immense use to science, medicine, etc. We are thoughtlessly destroying these precious treasure houses for short term profits and political expediency.

During droughts, available ground water is being over exploited. Thousands of borewells are sunk, especially in urban areas and the available ground water is pumped out. As the streets are paved and the houses built close, the rainwater, is not able to sink into the ground and recharge the ground water table. The ponds, tanks in urban areas which play a vital role in recharging ground water are closed to provide housing land for the growing urban population. Ground water exploitation must be accompanied by adequate afforestation and ground water re-charge measures.

The Northern rivers like Ganges, Indus, Brahmaputra etc., rise in the snow clad Himalayas and form a perennial source of pure clean water, or it should ! Unfortunately the Cities and towns on their banks let in their sewage into the rivers. The Industries situated on the banks of rivers let in their untreated toxic effluents

into the rivers. A study by the National Environmental Engineering and Research Institute, Nagpur shows that 70% of the available water in India is POLLUTED. Another study shows that before the Yamuna river enters Delhi 100 milli-litres of its water contain 7,500 coliform organisms. After it receives Delhi's waste waters, the coliform count skyrockets to 24,000,000 per 100 milliliters. Every river has a built in self purification capacity provided by nature, but if too much of polluted materials and water is let into it, even the mighty Ganga cannot purify itself, and the Government is going to spend several thousand crores to purify it and make it fit for human consumption. The use of Pesticides, Herbicides, etc., injudiciously by our agriculturists further pollutes the rivers when these injurious chemicals are washed into the rivers during rains. The aquatic life in the rivers is severely affected and causes loss of a major source of protein for the people and loss of livelihood for millions of fishermen and others connected with the fishing industry. Unfortunately most of those who create pollution have very powerful lobbies and are able to spend large amounts in hiring technical experts to support their case and bamboozle Government into accepting their demands.

Environmental awareness is confined to committees and groups of concerned Scientists. Prof. Madhav Gadgil of the Indian Institute of Science, Bangalore points out "the current economic situation is such that no section of the country's population—the local population, Government or industry—has any personal stake left. Unless we conserve the available water, preserve its purity, and distribute it equitably the future

of the country is bleak. Better management of our precious river water resources, cautious planned exploitation of our ground water resources and recycling of used water will go a long way in averting a future catastrophe. Better environmental awareness, among the public, better sense of dedication among enforcing staff of Government departments concerned, a responsible and responsive media highlighting environmental degradation and exploitation, creating better public awareness of the issues involved, may help to postpone the catastrophe. The younger generation has a major stake and should take greater interest in nature, environment, ecology, and conserve our limited supply of pure, clean water.

SOME FACTS FOR CONTEMPLATION :

- * Every six months, more topsoil gets washed away than has been used to build all the brick houses across the country.**
- * Seventy per cent of all the available water in India is polluted. About 73 million workdays are lost due to water-related diseases.**
- * As of 1981, out of the hundred odd prosecutions launched after the enactment of the Central Prevention of Water Pollution Act, 1974, only a few of the actual offenders have been penalised.**
- * Whenever the people have organised protests and challenged the polluters they have pushed the State to act.**
- * Cherrapunjee – the wettest spot on earth and covered with lush subtropical forests – is today a barren area (even drinking water has to be fetched from far-away places).**
- * Nearly one per cent of the land area of Himachal Pradesh has been stripped of its forest cover every year, over the last 25 years. 1.5 lakh trees will be cut every year just to make apple crates !**
- * There are 52 plywood factories in Assam. Timber priced at Rs. 1,485 per cu. m. in the market is supplied to them for Rs. 500 per cu. m. for tea chests and Rs. 740 per cu. m. for decorative plywood.**

- * Despite an investment of Rs. 7,510 crores on major and medium irrigation works, the average national yield for irrigated lands is a only 1.7 tonnes of grain per hectare as against the target of four to five tonnes per hectare.
- * Siltation rates of the reservoirs of major dams are three to four times higher than the project rates. The life-time of the Tehri dam may be just 30 or 40 years instead of the proposed 100 years.
- * Small hydro-electric projects have been ignored by Indian planners, despite the tremendous potential of such schemes. By contrast, in China, 87,000 small hydropower works generate a third of its hydroelectricity.
- * For India's 44 million tribals, destruction of forests has meant a cultural and social death.
- * Today, a significant portion of the 15,000 plant species and 75,000 animal species found in India are threatened by pressure of human activity on land and forests.
- *. A little over 10 per cent of India's flora faces extinction ; many species may be lost even before their possible value is known to society.

*Courtesy First Citizens' Report, Centre for
Science and Environment, New Delhi, 1982*

- * The latest satellite data confirm that India is losing 1.3 million hectares of forests a year.
- * Small earthen dams for water harvesting are both ecologically sound and economically profitable. Three small reservoirs have transformed the ecology of a village near Chandigarh. There is no soil erosion, no deforestation, no desertification, and no one has been displaced. The lesson, water conservation, yes ; big dams, NO.
- * India uses nearly 100,000 tonnes of pesticide annually. At least 70 % of this tonnage is contributed to by pesticides banned or severely restricted in Western nations.
- * Delhi today gets firewood from Assam, over a thousand kilometres away.
- * A single sample of wild rice collected from eastern Uttar Pradesh in 1963 gave Asian farmers a gene that saved 30 million hectares of paddy from the dreaded grassy stunt virus.
- * Surveys in a small part of the Silent Valley in Kerala, saved from 'Damnation' by a people's campaign, have revealed nine species and an entire genus of plants new to science.
- * With the country's original forests and grasslands steadily destroyed, four weeds—Lantana, Parthenium, Eupatorium and Water Hyacinth—are set to take over the land

Coutesy—The Second Citizen's Report, 1984-85
—Centre for Science and Environment,
New Delhi.

Some Sanctuaries in South India

Mudhumalai Sanctuary :

This sanctuary is situated about 65 kms. from Ooty on the Ooty-Mysore highway. Elephants, Bison, Chital, Sambhar, Dhole, Wild boar, Langurs, Giant Malabar Squirrels, Barking deer, sometimes tiger and leopards are also to be seen. The bird life is rich and varied. The Sanctuary can be visited almost at all times except the rainy season. Accommodation with food is available. Contact ; The Wild Life Warden-Mahalingam Buildings, Coonoor road, Ooty for details. Travel Corporation of T. Nadu has a youth hostel here. Jeeps and sometimes elephants are available for visit into the Sanctuary.

Bandipur Sanctuary :

A few kms. from Mudhumalai towards Mysore is the Bandipur Sanctuary and has similar fauna and flora as Mudhumalai and has also accommodation with food facilities. The following officers may be approached : Director Bandipur Tiger Reserve, Government House Complex, Mysore City or The Assistant Chief Conservator of Forests, Wild Life Sub-Division, 18th Cross Malleswaram, Bangalore. Conducted tours in vans, in the mornings and evenings and elephant rides are also available.

Nagarhole Sanctuary :

About 90 kms. to the South-West of Mysore is the Nagarhole sanctuary. This sanctuary offers more sightings of the wild life found in the two sanctuaries mentioned above. The Officers referred to for Bandipur

are to be contacted for this sancturay also. Van trip into the sanctuary is arranged by the Forest Deptment.

Ranganthittu Water birds Sanctuary :

About 15 kms. from Mysore on Madras road, near Srirangapatnam is the Ranganthittu Bird sanctuary. In the river Cauvery there are many small islands where on the terminalia Arjuna trees, Openbills, Spoon bills, Cormorants, Darters and several kinds of Storcks nest. Boats take the visitors to the islands. On the fields sorrounding, Black ibis, Pond herons, Night Herons can be seen. Visitors can go from Mysore, in the morning and return by evening. June to August is the season.

Anaimalais Sanctuary :

Twenty-five kms. from Pollachi is Top Slip. The Pollachi-Parambikulam bus in the morning and evening is a comfortble transport. Elephants, Gaur, Sambar, Mouse deer, Chital, Giant Squirrels, can be seen. Bird life is rich and varied. Hornbills, Drongoes, Grackles and, if you are lucky, you can see a troupe of Lion tailed Macaaque in the trees while watching for birds. Vans are available for visiting the sanctuary interior. Accommodation with food is available : Contact Wildlife Warden, Anamalai Sancturay, Mahalingapuram, Pollachi.

Kodikarai or Point Calimere Sanctuary :

A few kms. south of Vedaranyam is the Kodikarai Sanctuary. It can be reached by bus from Thiruturai-pundi also. In the forests to the east of the railway line (which goes right up to Kodikarai) Black buck, Feral ponys, Wild Boar, Rabbits, Black naped hare, Chital,

jackals, can be seen. In the swamps thousands of Flamingoes, Gulls, Terns and many waders can be seen. A forest resthouse with catering arrangements is available. Contact District Forest Officer, Tanjore, or Forest Ranger, Vedaranyam.

Mundanthurai Sanctuary :

About 40 kms. to the West of Tirunelveli Junction, by bus, one can reach Mundanthurai. Sambar, Chital Sloth bear and an occasional leopard can be seen. The lion tailed Macaque can also be seen in the higher reaches, the Common Langur and Bonnet monkey troupes can be seen easily. The bird life is good. A rest house is available and food can be prepared by the watchman on advance intimation. The Wild life Warden Shenkottah is in charge of accommodation.

Kalakad Sanctuary :

About 45 kms. by bus to the South from Tirunelveli is the small town of Kalakad. About 15 kms. from there, on foot, we reach the Sengalatheri forest rest house. This, as a base, we can explore the forests for the Liontailed Macaque, Bonnet macaque, Nilgiri Langurs, Elephants, Gaur, Flying Squirrels, Pangolins, Nilgiri tahr, Leopards and with luck a Tiger may be seen. Permission from the wildlife Warden at Tirunelveli has to be obtained before going there.

Periar Sanctuary :

140 kms. from Madurai on Kottayam road is Kumili. 5 kms. from Kumili is the Periar Tiger Sanctuary. Moderate to 5 Star accommodation is available here. Visit to the sanctuary is by boats run by the Kerala

Government Forest Department. Elephants, Bison, Otters, Dhole, Wild bear, Nilgiri langurs, Tortoises, etc., can be seen, as also cormorants, fishing Eagles, Darters, and other water birds. Around the Government rest-house, Giant malabar squirrels, Hornbills and a variety of birds can be seen. For further particulars apply to The Field Director, Periar Tiger Reserve, Thekkady (near Kumili), K erala.

Vedanthangal Bird Sanctuary :

About 70 kms. on the Madras-Tiruchi national highway near Madurantakam and about 14 kms. off the highway is the Vedanthangal Bird Sanctuary where during November to February many water birds come to breed. Cormorants, Egrets, Spoon bills, herons, Openbilled storks, Darters, Moor hens, White ibis and many wild ducks come here during the season. A forest bungalow is available for staying in the night. Early mornings and evenings are the best time for bird watching in the lake. Contact Wildlife Warden, 49, Fourth Main Road, Adyar, Madras-600 020 for reservation.

Nelapattu Bird Sanctuary :

96 kms. away from Madras on the Madras-Nellore Trunk Road is the Nelapattu Birds Sancturay. Spot billed-Pelicans, breed here in winter. Other birds like Cormorants, Grey herons, Spoonbills, Storks, etc., can be seen. Many ducks also can be seen.

There are many other smaller sanctuaries. Information about them may be obtained from the Honorary Secretary, Madras Naturalist's Society, 36, Fourth Main Road, Raja Annamalaipuram, Madras-600 028, enclosing a self addressed Inland letter for reply.

The Madras Naturalist Society is grateful to the Department of Environment, Forests and Wildlife for Financial help rendered via the Environmental Services Group in bringing forth this pamphlet for use in Higher Secondary Schools to create an Environmental Awareness among them.

The following books were consulted :

Centre for Science and Environment : The State of India's Environment, 1982, 1984-85.

Ecological Aspects of Development in the Humid Tropics (1982) National Academy Press.

Information gathered during many seminars and personal Communications and discussions with experts in the field, is also used.

Madras,
18-10-1988.

V. J. RAJAN,
Honorary Secretary,
Madras Naturalists' Society.



Another view of mylapore Kapaleeswarar Temple Tank.

Pic. V.J. Rajan



Mylapore Chitraculam.

Pic. V.J. Rajan