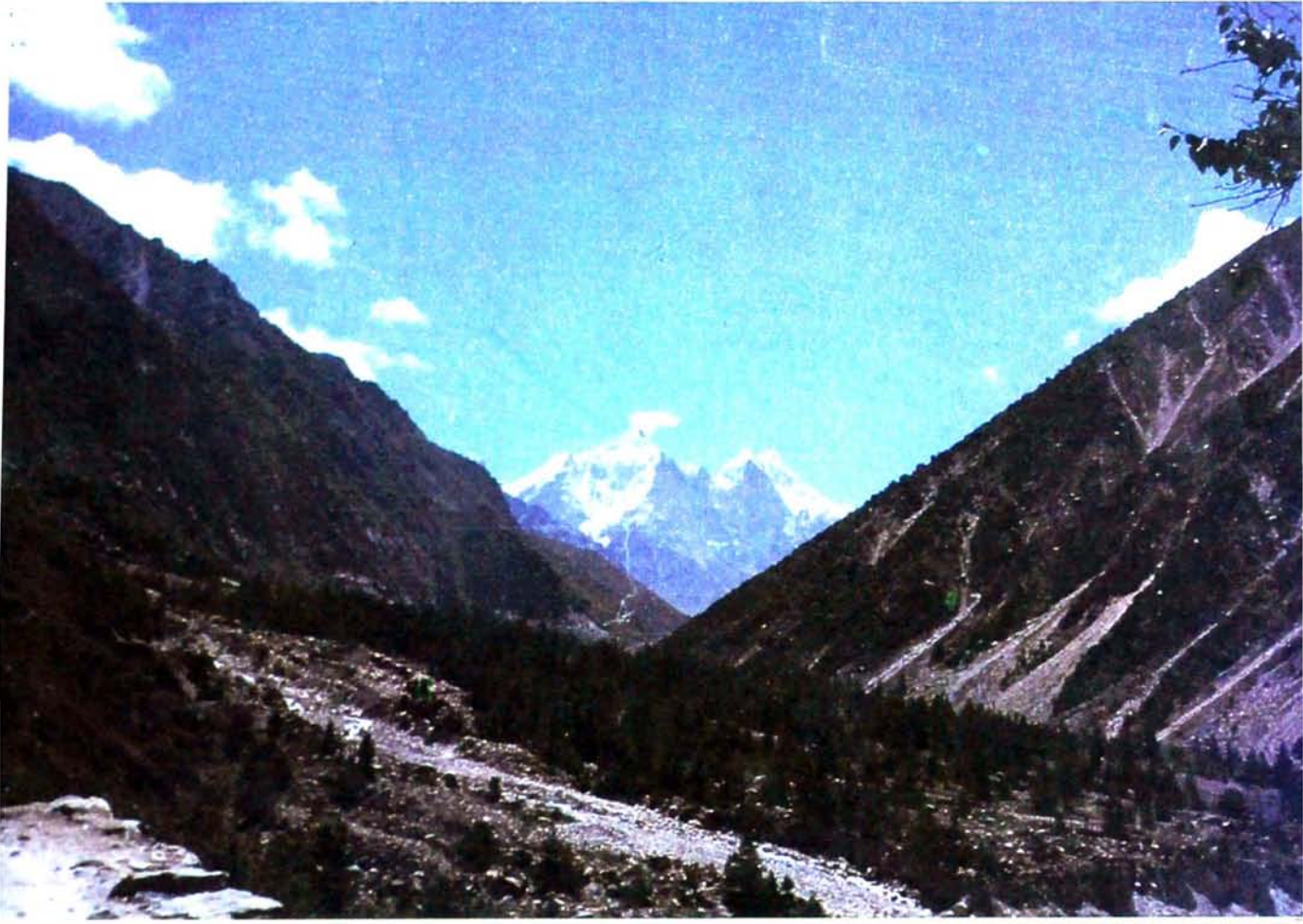

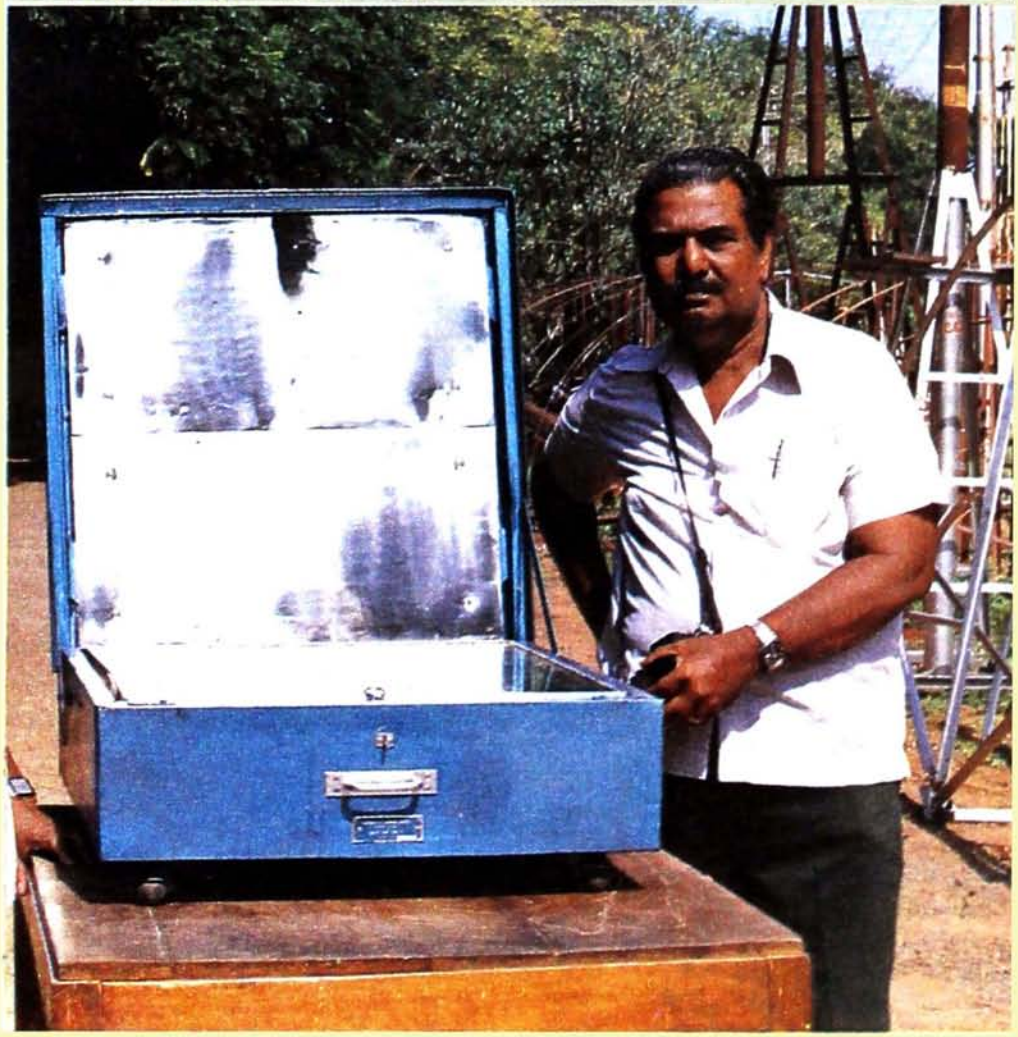

FLOODS AND DROUGHT

OUR RESPONSIBILITY

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Phone : 457253

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Front cover top–On towards Gomukh–Pic. Narasimhan

Front cover bottom–Gomukh–Pic. Narasimhan

Inside front cover top–Windmill–S. Krishnamurthi

Inside front cover bottom–Solar Cooker–S. Krishnamurthi

Back inside cover top–Himalayan Flora–Pic. V. J. Rajan

Back inside cover bottom–Feeding Elephant
–Pic. M. Krishnan

Back cover top–Himalayan Peaks–Pic. M. Raghu

Back cover bottom–Yamunathri–Pic. V. J. Rajan

The following books were consulted–

Centre for Science and Environment – The State of India's Environment 1982, & 84–85.

Biosphere reserves 1986–Dept. of Environment and Forests supplemented by personnel observations and discussions with many concerned experts in various Fields.

Finally The Madras Naturalists Society is grateful to the Dept. of Environment, forests and wild-life New, Delhi for the Financial help rendered via Environmental Services Group in bringing forth this phamplet for use in Schools to create environmental awareness among them.

November '87 **V. J. RAJAN**

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FLOODS AND DROUGHT

—OUR RESPONSIBILITY

In India it is almost an annual feature now, to have floods in one part of the country and drought in another part. Let us examine some contributing causes and possible cures.

India receives most of her rainfall during the summer or South-West Monsoon and the Winter or North-East Monsoon. Most parts of India receive rainfall during June to September while Tamil Nadu receives its rain mainly from October to December in the North-East Monsoon. Experts say that we use only 10% of the water we receive as rain and the rest goes into the sea. Nature had, in its wisdom, provided us with vast tracts of forests that could hold back the monsoon rain water, by infilteration of the water in to the sub-soil. Forests provide a layer of decaying organic matter of leaf-litter associated with deep roots, which make the soil structure conducive to infilteration; and its steady release through springs and the groundwater system, thus ensuring a perennial flow of water in the springs, rivulets and rivers. From an uncut ungrazed forest rarely will any water emerge as surface flow even during very heavy rainfall in the catchment areas. From ancient days, India had many ponds, tanks in villages and towns which collected rain water and recharged the groundwater table, for use during the non-monsoon period. Thus almost all rain water will be held back and transmitted downwards,

and there will be no floods and consequently the soil erosion that chokes our rivers and reservoirs with silt and mud will not be there. It is calculated that India looses about 6,000 million tonnes of topsoil every year because of our thoughtless denudation of our forests and tree cover which now forms less than 14% of our land area against the minimum of 33% suggested by our National Forest Policy of 1952. Even this cover is getting denuded by the pressure of population, both human and cattle.

India is a predominantly agricultural country and 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 purposess 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. Theoretically, these dams should be a great boon to the country. Unfortunately, in practice, it is not so. These dams have submerged many vital forests and productive lands. The work force employed for long periods rapidly deforest the areas and the deforestation in these vital catchment area. leads to soil erosion, land slides, which in turn reduces the carrying capacity of our rivers and reservoirs. 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 the expected life, envisaged for them.

A Government sponsored study has found the silting level in the Kundah Reservoir at about 2.87% per year !

Even though the amount of rainfall per year is fairly steady over the century, the incidence of floods and draughts has become very frequent. It is also found that the number of "Rainy days" has considerably reduced. Consequently, though a lot of rain falls in a short period since there is no forest or tree cover, worth the name, and as the beds of rivers and dams are silted resulting in low carrying capacities, floods have become an annual feature.

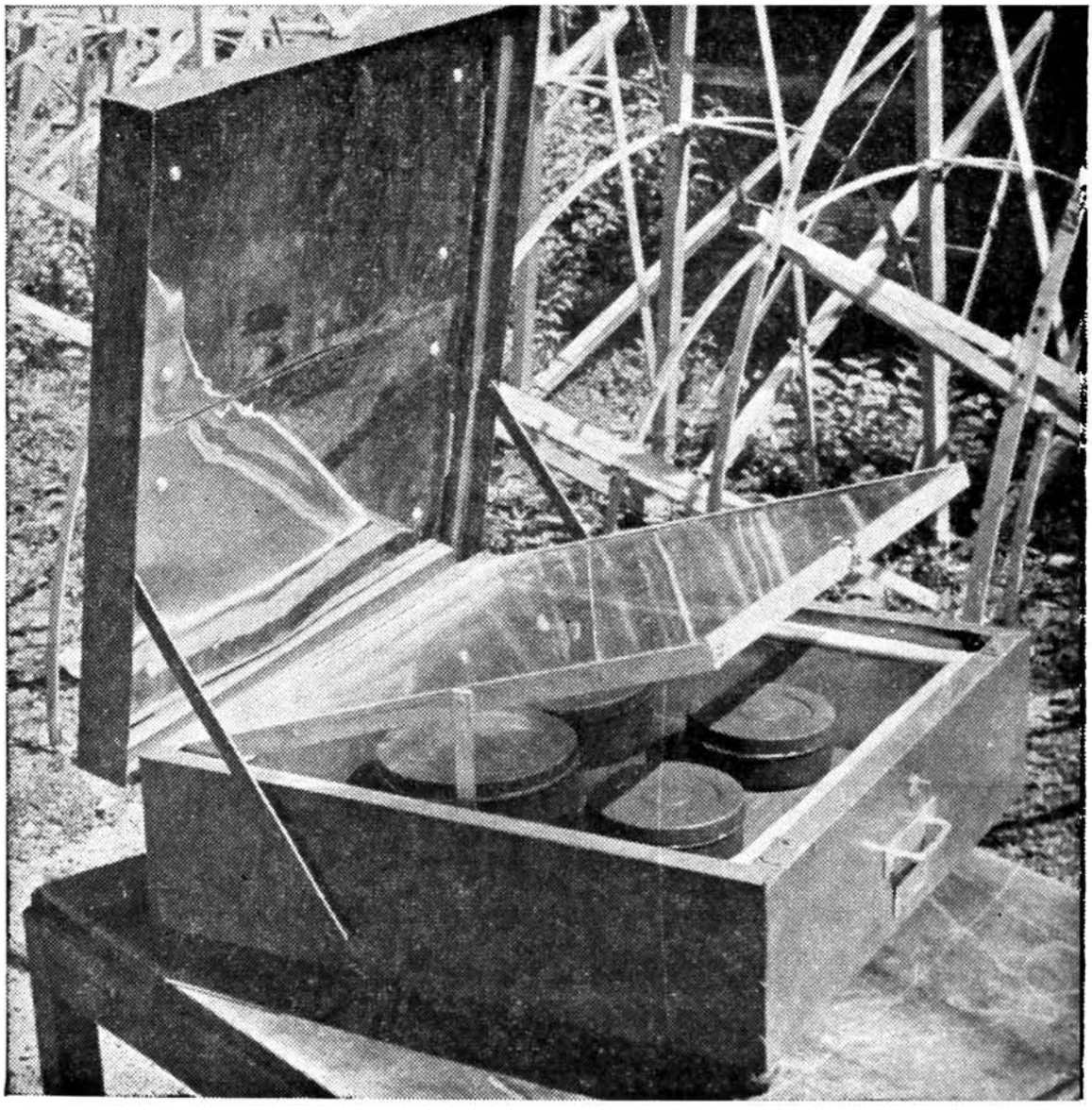
Pressure of population in towns and cities have forced the civic authorities to fill up ponds and tanks with rubbish and presto a new slum is there!

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. This results in depletion of tree and forest cover resulting in loss of top soil, diminished rainfall and silting of rivers and reservoirs.

The average assistance of the Central Government to State Governments for natural disaster relief has risen from 5.64 crores per year during the First Five-Year Plan period (1951–56) to rupees 1027.27 crores in 1985–86 and to about 1,200 crores in 1987 ! This is in addition to what State Governments spend on drought and flood relief from their own funds. This massive expenditure could be more usefully used in afforestation of our catchment areas, resettlement of refugees and others who are now settled in sensitive hill areas like Ootacamund, Kodaikanal, etc. What could be done to

stem this drift, which is likely to turn this country into a desert. Our fossil fuels like coal, lignite, crude oil cannot be expected to last long, at the rate of our present consumption. To conserve the fuelwood and fossil fuels, the feasibility of using alternate systems of energy available should be examined.

In urban areas with fairly good sunshine, the use of solar cookers should be encouraged. This is a suit-case-sized box into which shallow black coated aluminium

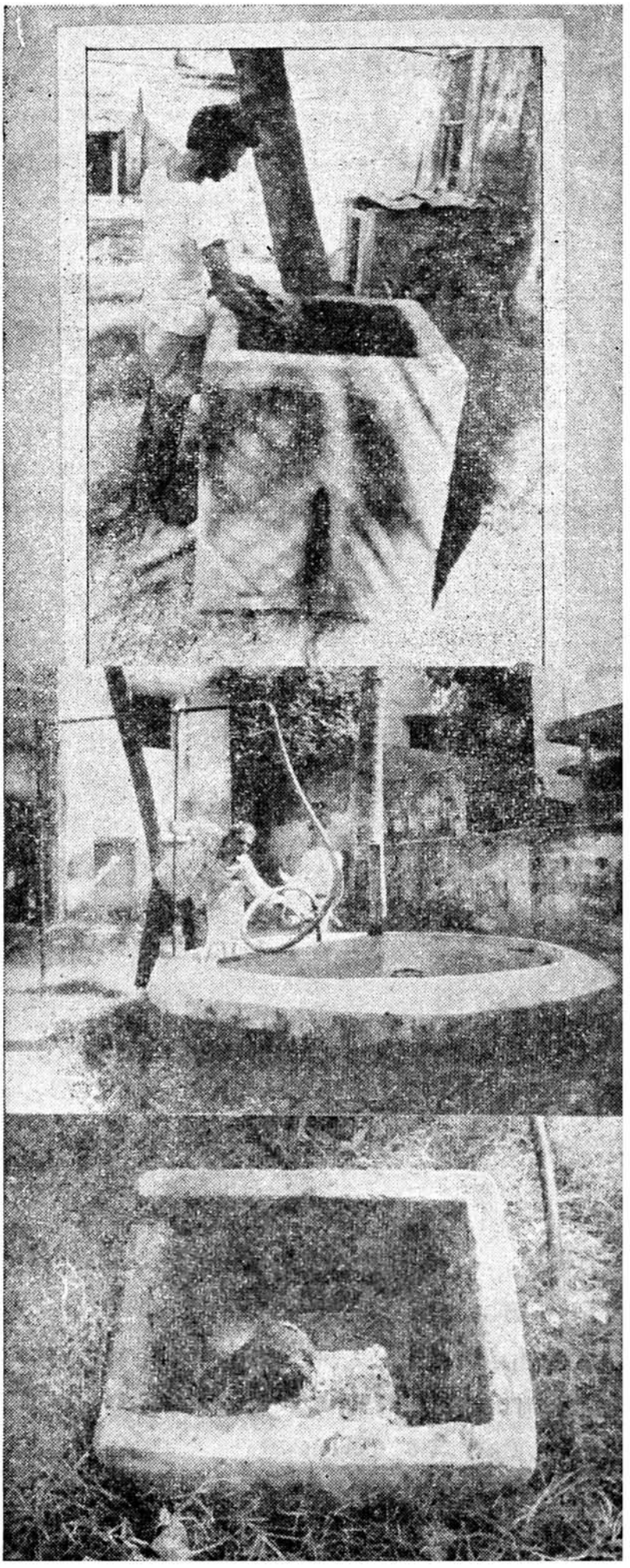


Solor Cooker

vessels containing rice, dhall, vegetables, meat etc., is kept with required water. This box is kept in the sun, turning the reflecting lid towards the sun. (*See* picture). The food gets cooked in about 2 hours during which time the house wife could attend to her other work. After the food is cooked, the regular gas or other oven is used for seasoning, frying, etc., This saves about 2/3 of the normal fuel like gas, kerosene, firewood, etc. The Subsidised cost of the cooker is about Rs. 230 only.

In rural areas the use of Bio-gas will be very useful, and economical and should be encouraged. This consists of a shallow well-like construction with an inlet and an outlet. Dung mixed with equal quantity of water is poured into the inlet (*See picture*) chamber and it goes into the middle disgesting chamber. An inverted metal bowl like cover is over the mixture and the gas produced is trapped in it. (*See* figure) It is then piped away into the house for heating and lighting. The used slurry is removed from the outlet chamber with a bucket and is an excellent fertilizer with over 80% nitrogen content. The construction cost is heavily subsidized by the Government. The Rural development authorities and the Coimbatore Agriculture University can supply construction plans and Technical know–how.

Of course, the solar cooker cannot be used in the rainy season or when it is cloudy. The bio-gas is also reported to be less efficient in very cold season. These can be used as supplements and will help the present fuel and fossil resources to last much longer, and the cutting the forests can be reduced.



Inlet

(1)

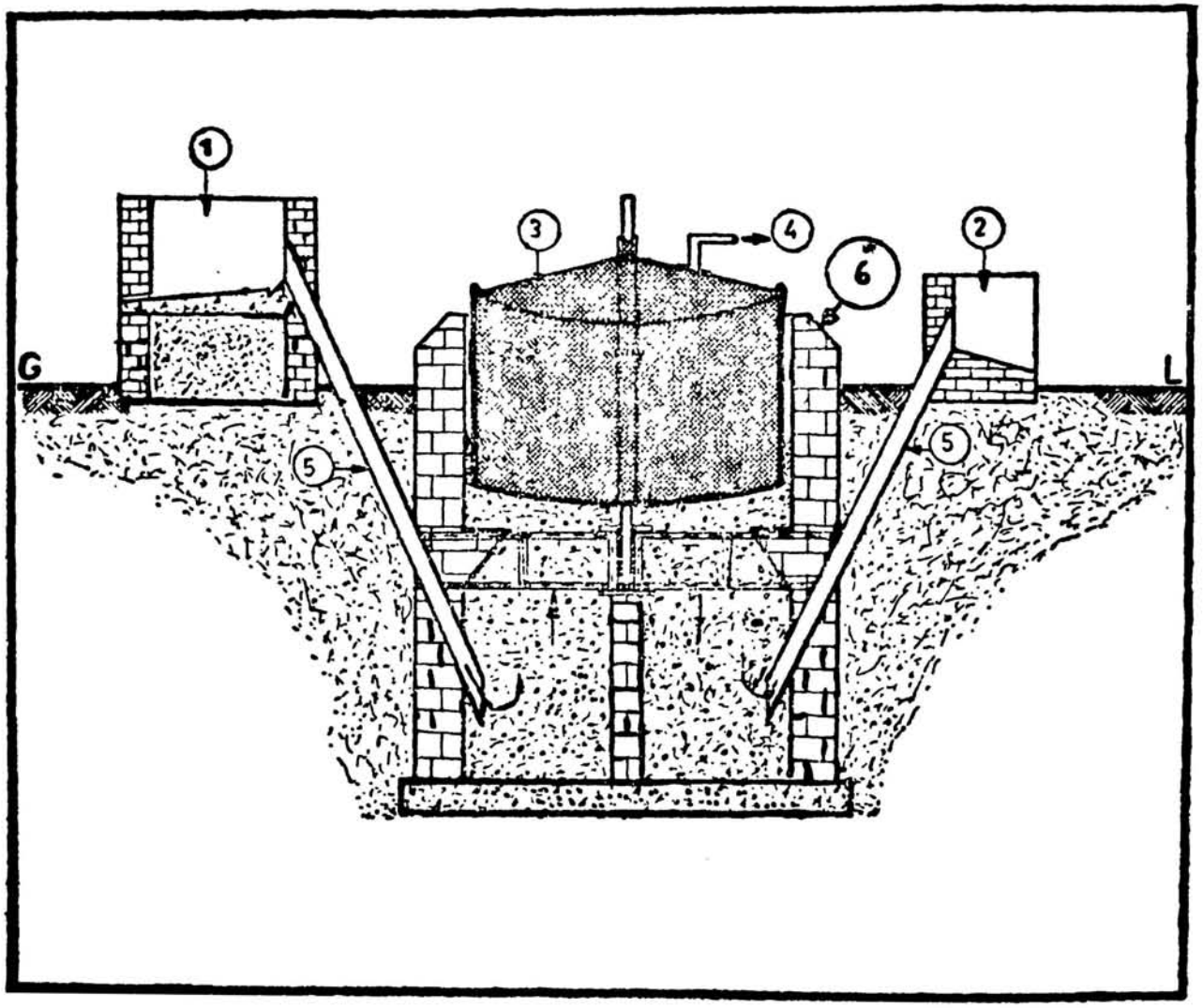
Digester

(2)

Outlet

(3)

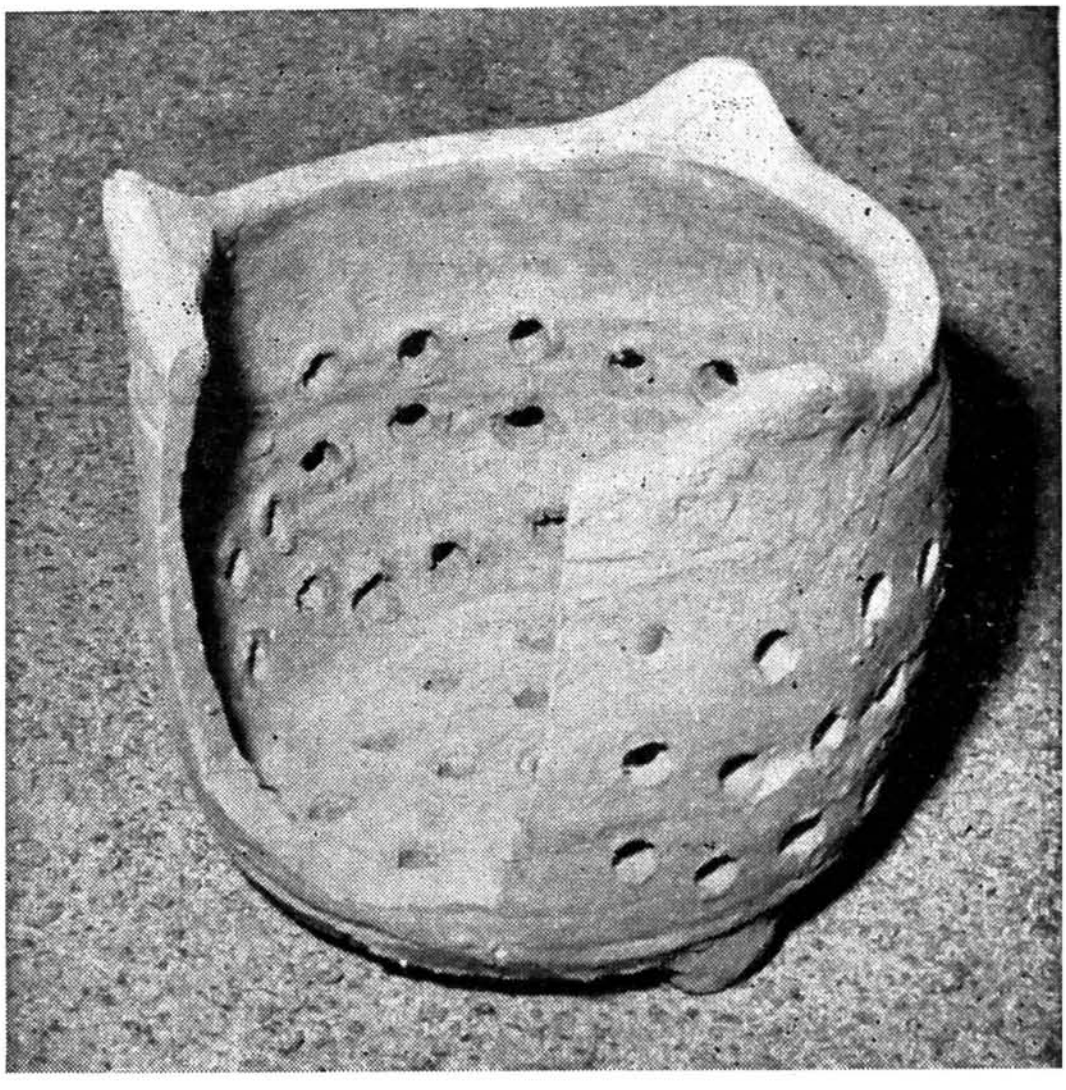
Pic :
Dr. Baba Krishnan



BIO–GAS PLANT DIAGRAM

1. **Inlet Chamber**
2. **Outlet Chamber**
3. **Digester**
4. **Gas Outlet Pipe**
5. **P. V. C. Pipe**
6. **Digester Wall**

Another method of saving or conserving our scarce fuel wood is to use fuel efficient ovens or choolas. The ordinary traditional rural CHOOLA is reported to be



less than 10% efficient. By adapting the principles of these smokeless cum fuel-efficient CHOOLAS, more than half the fuel used presently can be saved, thus indirectly saving the forests.

Better management of our precious water resources will go a long way in alleviating the periodic flood and water shortage. Construction of small dams in the upper reaches of the river, covering the catchment areas with trees, shrubs or Grass BEFORE starting construc-

tion the dams will prevent the silting of reservoirs and will prolong their useful life. It is reported that China has over 87,000 small hydel-works and they generate over a third of its power requirements. These small dams will not submerge huge fertile lands nor have many hundreds of families to be uprooted as in the present case of huge dams.

Cautious exploitation of ground water could also help in the prevention of droughts. Recycling of used water is another possible way of saving water. The recycled water could be used for irrigation, gardening farming etc. thus saving and conserving the normal supply of water. Even such a simple action as leaving leaking taps unattended causes unnecessary waste of precious drinking water. Taps left open inadvertantly during non-supply hours and not attended to immediately when supply resumes, results in enormous waste of water and is especially noticiable in Hotels, Hostels, Hospitals, Schools, etc. Taps must always be kept closed. Washing of face etc., should never be done with the tap kept running. Water should be collected in a vessel and face washed. People having garden or open spaces should not pave them with cement or mortar. Rain water should be allowed to soak into the ground. Small ponds and tanks should be allowed to collect rain water and help in recharging the ground water. Every effort must be made by the people and Government to conserve as much of the rain water as possible and not allow all of it to run into the sea as is being done now in Madras.

Everyone must realise that purified water is a precious commodity and should be used with utmost care.

Everybody having some open space should grow some trees using the waste water of their own house.

The present severe drought in 1987 should be an eye–opener and we should all help in preventing such recurring droughts and floods to the extent we can possibly do.

Everyone has to feel responsible for the preservation of an unpolluted environment and should not do anything that directly or indirectly causes degradation or pollution of the Environment. Our precious forests, rivers lakes, atmosphere and land should be preserved for our children and their children or there may be no wildlife, butterflies, or flowers or forests for them to enjoy.

Some useful addresses :

For Solar Cookers :

1. The Tamilnad Consumers Co-operative Federation, 26, Arcot Road, Saligramam, Madras-600 093.
2. The Kamadhenu Supermarket, Annasalai, Madras.
3. The Chintamani Supermarket, Annanagar, Madras.
4. The Murugappa Polytechnic, Avadi, Madras.

For Bio–Gas Plant :

1. The Director, Rural Development Centre, Kuralagam, Nethaji Subhas Chandra Bose Road, Madras-600 108.

2. The Khadi and Village Industries Board, Radha-Krishnan Salai, Mylapore, Madras.

3. Any Local Rural Development Officer.

4. The Tamilnad Energy Development Agency (TEDA) No. 1-A, Nungambakkam High Road, Madras-34.

To report Destruction of Wild Life, Birds, Trees, etc. :

1. The Wild Life Warden, 49, 4th Main Road, Adyar, Madras-20.

2. The Chief Wild Life Warden, Tamil Nadu Forests, Tiruchi Road, Coimbatore.

To Report Pollution of water :

1. The Secretary, Department of Environment, Fort St. George, Madras-9.

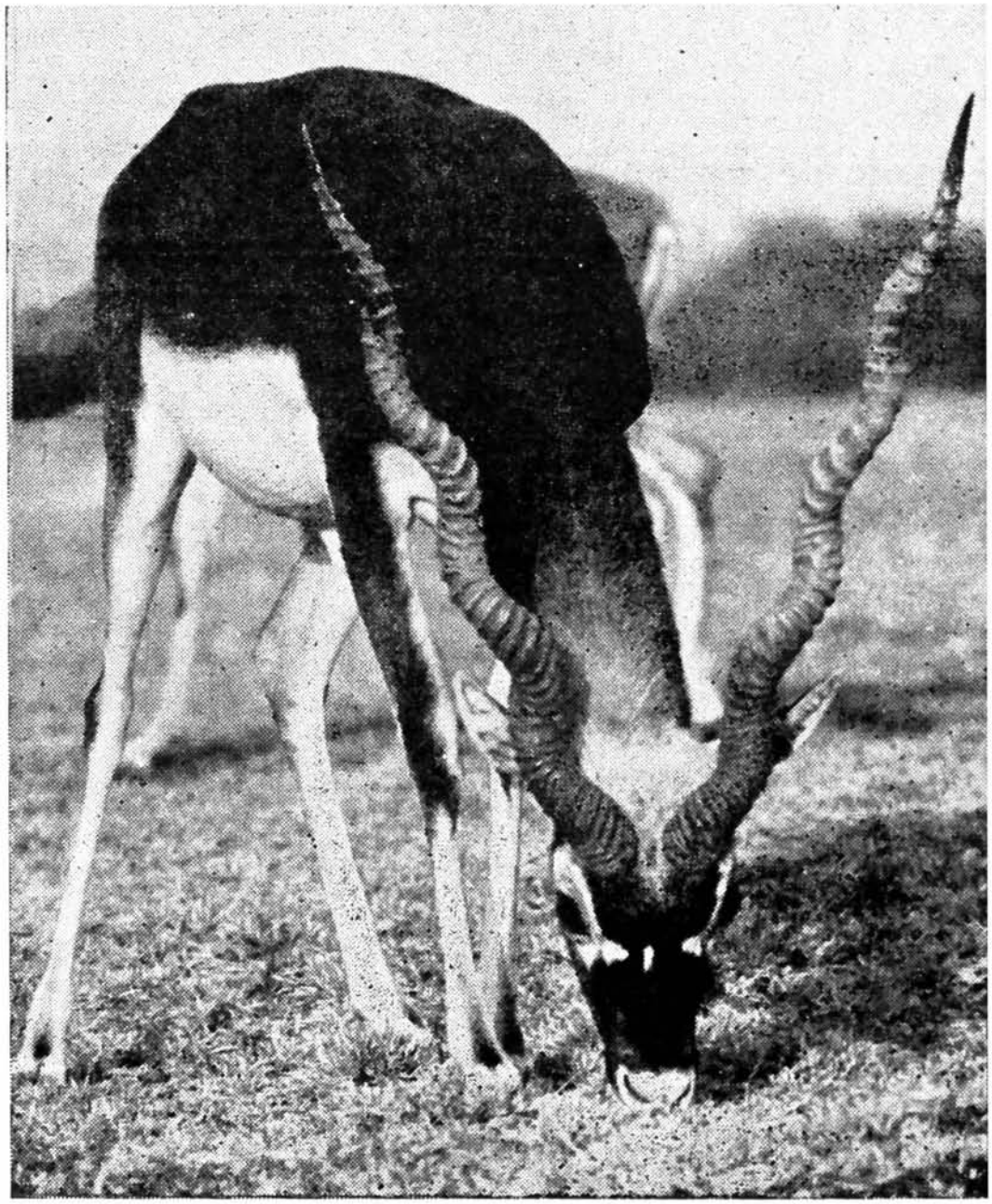
2. Tamilnadu Pollution Control Board, Santhome High Road, Mylapore, Madras-4.

For Information—Improved CHOOLAS :

1. Madras School of Social Service, Casa Major Road, Egmore, Madras-8.

2. The Tamil Nadu Energy Development Agency, 1-A, Nungambakkam High Road, Madras-34.

Note :—Your M.P. & M.L.A.s', are your elected representatives in Parliament or Legislature are also responsible so you should send a copy to then and ask them to take action.



Some Sanctuaries in South India

Mudhumalai Sanctuary :

Situated about 65 kms. from Ooty on Ooty-Mysore highway. Elephants, Bison, Chital, Sambhar, Dhole, Wild bear, Langurs, Giant Malabar Squirrel, Barking deer, sometimes tiger and leopards are also to be seen. The bird life is rich and varied. The Sanctuary can be visited almost all times except the rainy season. Accomodation with food is available : Contact The Wild life Warden-Mahalingam buildings, Coonoor road, Ooty for details.

Bandipur Sanctuary :

A few kms. towards Mysore is the Bandipur Sanctuary and has similar fauna and flora as Mudhumalai and has accomodation with food facilities. The following officers may be approached : The Field Director, Bandipur Tiger Reserve, Government House Complex, Mysore City or The Assistant Chief Conservator of Forests, Wild Life Sub-Division, 18th Cross Malleswaram, Bangalore.

Nagarhole Sanctuary :

About 90 kms. to the South-West of Mysore is the Nagerhole 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 sanctuary also.

Ranganthittu Water birds Sanctuary :

About 15 kms. on the Mysore-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, spoonbills, cormornts, darters and several storks 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 :

Thirtyfive kms. from Pollachi is Top Slip. The Parambikulam-Pollachi bus in the morning and evening is comfortable transport. Elephants, Gaur, Sambar, Mouse deer, Chital, Giant Squirrels, can be seen. Bird life if rich and varied. Hornbills, dronges, grackles and if you are lucky you can see a troup of Lion tailed Macaaque in the trees while watching for birds. Accomodation with food is available : Contact Wildlife Warden, Anamalai Sanctuary, Mahalingapuram Pollachi.

Kodikarai or Point Calimere Sanctuary :

A few kms. south of Vedaranyam is the Kodikarai Sanctuary. It can be reached by bus from Thiruturaipundi also. In the forests east of the railway line, which goes right up to Kodikarai, black buck, Feral penies, wild bear, 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 Dist. forest Officer, Tanjore, or Forest ranger, Vedaranyam.

Mundanthurai Sanctuary :

About 40 kms. to the West Tirunelveli Junction, by bus, one can reach Muddanthursi. 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 troups 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 accomodation.

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 macacaque, Bonnet macacaque, Nilgiri Langurs, Elephants, Gaur, Flying Squirrels, Pangolins, Nilgiri tahr, Leopards and 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-Kottayam road is Kumili. 5 kms. from Kumuli is the Periar Tiger Sanctuary. Moderate to 5 star accomodation 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 resthouse, Giant malabar squirrels, hornbills and a variety of birds can be seen. For further particulars apply to The Field Director, Perior Tiger reserve Thekkady (near Kumili) Kerala.

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, spoonbills, 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.

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