

# **CHILIKA : THE NATURE'S TREASURE**

Will it be allowed to die ?

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## CHILIKA LAKE IS DYING - WE MUST SAVE IT

Chilika lake on the eastern coast of Orissa which is the largest brackish water lagoon of Asia, is dying. If immediate steps, both short term and long term, are not taken, it will face a biological death within half a century. It may exist as a big polluted marshy land and lose its importance for all time to come.

Chilika lagoon has been designated since 1981 as a 'Wet land of international importance' under Ramsar Convention of 1971 to which India Government was a party. It is the obligation of the Union Government under that convention to protect its unique ecosystem. 'Wise Use' of its resources can be done according to that convention. Despite this commitment to the international community, neither the Central nor the State Government has taken any step to maintain its ecosystem. Both State and also human intervention are responsible to push this pristine lake to the verge of death. Because of sharp deterioration of the lake, the Ramsar Convention's bureau has placed this international famous lake in its 'Red List'.

This lake, which is more than 1150 square kms in area in rainy season is hardly 800 square kms in summer. It is shrinking every year. According to official document it was about 900 sq. km in area in summer of 1914 and the average shrinkage of the lake due to silt deposit is about more than 2 sq.km a year.

The Daya and the Bhargavi, the main branches of the Mahanadi river fall into this lake. Besides these, many small rivers and rivulets including Nuna, Kusumi and Salia also join this lake. These rivers carry huge volume of silt-laden sweet water to the lake. According

to the rough estimate about 3 lakh cusecs of fresh water carrying about 13 million metric tonnes of silt are carried into the lake. In earlier days because of free flow of flood water from the lake through the outer channel (35 km. in length) that connects the lake with the sea, much of the silt was flowing with the fresh water into the sea. But because of the gradual choking of the mouth (Mugger Mukh) and large scale obstruction for prawn culture etc. in the lake, the free flow of water and silt is checked and silt is trapped inside the lake. So the lake is gradually shrinking and the depth of the water is gradually decreasing. Now the maximum depth of water in some places is hardly 4 metres and the average depth of water in the lake is 1.6 meter in the summer and 2 metres in the rainy season. In 1922 the average was three metres in summer. Because of drainage of fresh water into the lake throughout the year and much more during the rains, the salinity of the water of the lake is gradually falling. During the rainy season it is hardly 1.5 ppt. near the north-eastern side of the lake. In summer it varies between 7 to 33 ppt.

Because of these reasons, the quality of water of the lake is gradually undergoing a change Effluents from nearby villages and agricultural fields also contribute a lot to the transformation of the quality of lake water.

All these factors have a serious effect on the flora and fauna of the lake. The brackish water species are gradually dwindling, sometimes giving birth to other species which grow in fresh water. The fishery resources are also gradually decreasing. The catch of fish, prawn, crabs etc., for which Chilika lake was very popular, is steeply falling. According to official statistics within a period of ten years, it has been reduced to one third only. Fish catch was 8872 m. tonnes in 1986-87 and the official statistics record that in 1991-92 it got reduced to 4623 MT.

According to Zoological Survey of India (ZSI) about 40 percent of brackish water fish species recorded in 1920, have vanished meanwhile. Significant percent of 'uro-hyda' or brackish water fauna have disappeared or gone down critically due to drop in the salinity of lake

water. Zoological survey of India records that 600 species of fauna exist now. About 69 species of fish are available in the lake as against 126 species of fish recorded in 1920 by Zoological Survey of India. There has been a great transformation in marine animal. The earlier survey recorded animals of 525 species belonging to 10 Groups. But at present according to latest survey it is 17 groups, the total species of animals being 650. Because of fall of salinity and water quality old species of flora and fauna are vanishing or are in critical state of existence and sometimes new species are reappearing. Chemical analysis also shows variance of Ph factor and reserve oxygen in water of the lake.

Constant and increasing siltation of the lake is the major cause of the shrinkage of the lake in area and lowering of the depth of the water level. Northern portion of the lake is heavily silted and it is gradually shifting in the direction of the south. Between 1920 to 1993 about 393 sq.km. of area has emerged as landmass on all sides of the fringe of the lake. Between Bhusandapur and Balugaon of Khurda district, the total land mass created during this period is about 46 sq.km.

So the immediate problem to save the lake is to allow free flow of siltladen flood water into the sea, for which all the obstructions (prawn- gherry etc.) inside the lake is to be removed. The long term solution is to decrease the entry of large volume of silt to the lake by treatment of the catchment area surrounding the lake and on both sides of the rivers that flow into the lake.

Along with these short term and long term measures, the outer channel mouth to the sea (Mugger Mukh) which is chocking up and gradually shifting north-ward due to littoral drift is to be deepened and maintained properly for out-flow of flood water and inflow of tidal water. This is urgent to maintain the salinity and water quality of the lake.

Because of the all round deterioration of the lake, the Nalabana Sanctuary in it, which houses the migratory birds of North Asia beyond the Himalayas (Tibet, Mangolia, Manassarobar, Caspian Seas and

Siberia) in the winter, is facing the danger of degradation. Nalabana Sanctuary is a marshy island of 15 sq. kms inside the lake where about 7 to 8 lakh birds belonging to 151 species out of which 93 species are migratory in nature, congregate in every winter for nesting and resting purposes. It is the biggest birds' congregation in winter in India, when the entire North Asia are covered with snow depriving the birds of their habitat and food. Chilika lake because of peculiar flora and fauna provide the ideal habitat for them.

Due to change of water quality, the necessary food chain is gradually missing and the Nalabana area itself is under water depriving them the usual habitat. Because of abnormal and errant rainfall this year (1995-96), the water level was higher in the winter and a major portion of the marshy island was covered with water. Though the number of migratory birds that visited the lake in this winter was normal, but due to lack of space in the Nalabana habitat, they got dispersed and lived on the periphery of the lake. This gave an ideal opportunity to the poachers to illegally poach the birds. This is difficult to prevent.

Another peculiar characteristic of the lake is the existence of large number of dolphins. They are Irrawady species which is highly an endangered species in the world. In earlier days they were found even in Southern portion of the lake. Because of siltation, they are now mostly found in the outer channel and the neighbouring areas of Satapada village from where the outer channel starts from the lake to meet the sea at Muggar Mukha. The dolphins enter through this channel from the sea and make their play ground lovely and highly attractive. Siltation and obstruction by fishing nets etc. in the outer channel have posed a danger to the very migratory path of this lovely creature.

Because of all these wonderful characteristics, Chilika continues to be an ideal heritage of nature. The Oriya literature of the State has got enriched by poets and authors during the last two centuries centering round chilika. Chilika lake has got its place in the history, literature and culture of people of Orissa and has become an integral

part of Oriya life. But actually it is a nature's gift to the humanity and its ecosystem function as a part of the lungs of a part of the country.

When that precious heritage is in danger, naturally all are concerned about it. The primary duty of protecting this lake of international importance rests with Government of India and also the State Government. They are committed morally to the international community under Ramsar Convention, but they are absolutely apathetic and are responsible for its slow death. Hence it is time, though late, for the countrymen including all parliamentarians and intellectuals to take up the cause of the Chilika lake and allow it to live for years to come and to hand over this precious heritage to the future generations. It is not only a moral duty, but a constitutional duty too. Under the Constitution of India, all of us have a 'fundamental duty' under Article 51A in Fundamental duties of Indian Constitution to 'protect and improve' the natural environment including the lake, forest, wild life and sea. The State has equally a duty under Article 48A in Directive principles of Indian Constitution to do the same. If the State fails to implement the directive principles, let us not fail and betray our constitution to which we are committed because of our birth in this country. Thereby the State will be compelled to do its duty.

For the solution of the malady that has afflicted the lake and has threatened its very existence, we are suggesting the following measures to be urgently implemented. These will lengthen its life for centuries, if not for all ages - the lake is a transitory phenomenon in nature's ecosystem- and the danger to its existence will be certainly averted.

#### **IMMEDIATE MEASURES:**

- (a) *Prawn culture should be banned in the lake including its fringe areas.*
- (b) *All the encroachments should be removed and all types of obstructions against flow of waters should be dismantled. Outer*

channel, Dahikhia nala and Palur canal should be kept free from any type of obstruction. The dilapidated abandoned Tata Prawn culture ponds' embankments should be dismantled to allow free flow of water in the lake.

- (c) *There should be a limit to the number of motorised boats plying in the lake, as their diesel and oil discharge pollute the water of the lake, and they cause intense sound pollution.*
- (d) *Introduction of zero fishing net inside the lake should be completely banned as it obstructs flow of water and migration of juveniles.*
- (e) *The large scale catching of wild seeds of prawn and fish to feed the prawn culture ponds on the coast of Orissa and of other States should be stopped mercilessly as it is the major cause of depletion of fishery resources.*
- (f) *Afforestation on the neighbouring hills and waste lands should be undertaken with emergent speed to stop soil erosion and silting of the lake.*
- (g) *A ten-kilometre buffer zone around the lake should be notified as regulated area and economic activities in that areas should be regulated to stop effluent discharge etc. which cause pollution of the lake. Plantation and anti-soil erosion programmes should be undertaken in that regulated zone. Hotels and other works that are being undertaken to encourage tourism should conform to normal environment standards with effluent treatment.*
- (h) *Pallur canal should be further dug and all prawn ponds for both sides of the canal should be removed. Obstruction and pollution of canal should be removed to allow free flow of tidal water and migration of wild seeds throughout the year.*
- (i) *A marine sanctuary should be established in Chilika area for protection of dolphins and also the recently discovered nesting*

place of Olive Ridley sea turtles near Prayagi to the north of Rushikulya river mouth.

*The area of the sanctuary should cover the Outer channel, the entire Chilika beach from Mugger Mukh to Rushikulya mouth and ten kilometres wide area sea-ward side along the beach. The entire area should be well protected.*

- (j) *Immediately Environment impact Assessment of the lake by experts of multi-disciplines should be conducted and remedial steps should be taken to preserve and improve the ecosystem. Steps should be taken to regularly monitor the environmental condition of the lake.*

The Orissa High Court in its judgement in 1993 about the rights of fishermen in the lake has categorically ordered for the above two programmes. Like removal of encroachments from the lake, their order regarding environment of the lake has been blatantly violated by the Orissa Government. It is sheer contempt of court by the State Government.

#### **MEDIUM AND LONG TERM MEASURES:**

- (a) *Steps including dredging of the mouth of Chilika or direct cut of the previous mouth to the sea should be undertaken after obtaining technical advice of the Goa-based National Institute of Oceanography of the Government of India and other international experts bodies. This is necessary to stop choking of the mouth and free flow of flood water laden with silt.*
- (b) *Plantation and anti-soil erosion programmes should be taken up in large scale on banks of all the rivers that enter the lake to prevent siltladen water to rush into the lake and to prevent deposit of silt in the bed of the lake.*

The Zoological Survey of India has already drawn the attention of the Government to the deterioration of the lake and to loss of flora and fauna that were existing during their first survey in 1920. They

have also advised against prawn culture and for protection of dolphins by establishing a sanctuary. They have also warned about unplanned tourism.

The Orissa High Court in its judgement of 1993 has advised for immediate removal of encroachments by prawn culturists. They advised as a 'lesser evil' pen methods of prawn culture while prohibiting semi-intensive and intensive prawn culture, only on the fringe areas of the lake which were usually under 'Dia' and 'Uthapani' areas, not inside the water of lake. Though they were only concerned with the rights of fishermen and Government's latest policy of 1991 which divided Chilika's fishery sources into capture and culture fisheries, they still went into environment aspect of the lake because of "Chilika Bachao Andolan". That is why the Hon'ble High Court set up a fact finding committee under Prof. G.C.Das to recommended both about fishing rights of Chilika and environment of Chilika. Though the High Court in its judgement has not invalidated the 1991 fishery policy of the State Government which was a sharp departure from the old policy, they recommended for Environment Impact Assessment of the lake due to prawn culture and also environmental monitoring from time to time. They also advised against any improved method of commercial prawn culture. That is why they preferred only pen method of culture and that is also in the fringe areas of the lake mentioned above.

This land mark judgement has virtually banned the modern commercial prawn culture like that of the Tata's that started construction activities by then. Tatas were also prohibited to go ahead with construction by that time by the Central Government until environmental clearance was given. At that point of time the Orissa High Court judgement came and virtually barred the Tatas, though it was not an issue before the Hon'ble Court. When semi-intensive and intensive method of culture ( excepting pen method) was banned naturally, the Tatas or anybody else whoever wanted to undertake prawn culture with hi-tech. method, was barred.

But the coastal Regulation Zone notification, 1991 under the Environment Protection Act has created altogether a different situation.

The entire Chilika lake and the sea beach area of the Chilika lake are included in CRZ-I. Under that notification because it is subject to tidal action of the sea. Under that legal provision, the area of 500 metres landward side from the high tide line of the sea or the lake is regarded as coastal zone I and very limited and specified economic activity can be done in that area with the permission of the Union Government or the State Government. So the policy of the State Government to allow culture of prawn since 1991 is untenable as it was being conducted either in the water of Chilika lake or within 500 metres of the high tide line. That is why it is legally proper that the traditional method of fishing should continue and the 1991 fishing policy of allowing culture method, should be given a go-bye. To that extent the High Court Judgement of allowing prawn culture on pen method in the fringe areas becomes redundant.

In para 17 of the proceedings of the meeting of the Task Force on coastal Zone Management Plan held in Paryavaran Bhawan, headquarters of the Union Ministry of Forest and Environment it is stated as follows:-

'17. In response to a query, Orissa Government representative clarified that the entire Chilika lake along with the 25 k.m. long channel to the sea had been classified as CRZ - 1.'

Because of the aforesaid reasons, one of the greatest hurdle for banning prawn culture in the lake and therefore on the sea beach of Chilika is over. So Government of Orissa should change its fishery policy and restore the old principles which did not envisage culture method of fish in the lake. This will also naturally protect the livelihood of one lakh of fishermen who were living on the lake by exploiting the fishery resources by traditional method since the Marhatta days. During the eighties when prawn became a prize commodity of export, outsiders encroached into the Chilika lake and brought in Mafia raj. The fishermen community were completely marginalised and were coerced to surrender before these outside forces including powerful politicians, high bureaucrats and rich businessmen and their relations.

So once the prawn culture is banned in the lake, the right to livelihood of about one lakh fishermen will be ensured. So Chilika's existence and its environment protection, can ensure the livelihood of the indigenous people, the fishermen community to live honourably. The "Chilika Bachao Andolan" and other environmental movements conducted by Orissa Krushak Mahasangh (OKM) since 1991 has one lesson for all. Protection of Environment and Protection of livelihood of the poor and indigenous community, are two sides of the same coin. So the environment protection movement guarantees the human rights of life and property of the toiling masses.

The "Chilika Bachao Andolan" sponsored by "Orissa Krushak Mahasangh" has launched this second phase of the movement to protect the lake after succeeding in the first phase of its struggle to throw out the Tata's Prawn Culture Project from the lake, that is, throwing out the modern commercial prawn culture from the lake. Then only all the factors responsible for degradation of the lake will be eliminated and Chilika will live in its pristine beauty and glory. For this purpose, it is our duty to mobilise public opinion in Orissa and outside and spearhead a powerful movement to implement the programme of action as mentioned above to save the lake.

## CHILIKA LAKE-ENVIRONMENT AND AQUACULTURE

Chilika lake in Orissa, which is designated as a wetland of international importance under the Ramsar Convention, is a natural heritage of rich biodiversity. Because of the steep deterioration of its environment, the unique biodiversity is facing a disaster. If urgent measures are not taken, it is apprehended that the lake may reach a position of no return within fifty years.

One lakh fishermen live in 122 villages in and around the lake on its natural resources of fish, prawn and crab. They will lose their means of livelihood and become destitutes if the ecology of the lake is not protected. The reasons for the impending disaster are both natural and man-made.

Seven rivers and rivulets including Daya and Bhargavi, the tributaries of the Mahanadi which fall into the lake, carry about 14 million tons of silt annually into the lake. As a result of this, the depth of Chilika is gradually getting reduced, particularly in the northern sector of the lake. On the other hand, the outer channel which connects the lake to the sea is gradually getting choked due to littoral drift at the Mugger Mukh mouth obstructing the free flow of flood waters in the rainy season. It is also hampering the tide water from entering the lake in summer from the sea. As a consequence of this, much of the silt remains deposited in the lake and the brackish character of the lake water is gradually changing. This has seriously affected the fishery resources of the lake and the vegetation.

Along with this, the area of the lake which was about 2200 sq.kms. a century ago has been reduced to about 1100 sq. kms. in the rainy season and to about 900 sq. kms. in the summer. If remedial measures are not taken immediately, both the area and depth will be seriously reduced and the flora and the fauna will undergo a complete change.

Nalabana, a swampy island inside the lake, which has been declared a bird's sanctuary, is the nesting ground of migratory birds which come all the way from Siberia and other regions of the northern hemisphere every winter. With ecological degradation, there is the ever present apprehension that Nalabana will lose its place of pride as the premier nesting place in India. At present it is recorded that 150 species and sub-species of migratory and resident birds visit the lake, out of which 97 species are inter-continental migrants.

The average yield of fishery resources was estimated a decade ago as 3663 Mg(tons) of which prawns contributed 28.08%, mullets 19.07%, cat fish 12.4%, clupeoids 12.14%, perches 11.03%, threadfins 6.44% and sciaenids 5.9%. The average yield per hectare was 35.35 kg. Crabs, a minor fishery, is also an important resource.

With prawn becoming an international commodity, trouble started in this placid lake during the eighties. Outsiders and businessmen entered the lake for prawn culture and began to make big money. The traditional fishermen who were following the traditional extensive method were gradually eased out.

The lure of foreign exchange brought the Tatas for semi-intensive prawn culture inside the lake and the Chilika Aquatic farm, a joint sector project, started construction activities for big prawn ponds inside the lake. A people's movement was started by fisherman who were likely to lose their only means of livelihood. The "Chilika Bachao Andolan" was started by the "Orissa Krushak Mahasangh" against the Tatas and particularly against hi-tech prawn culture which would have accelerated the environmental degradation of the Chilika lake affecting the livelihood of fisherfolk. Many experts of national

and international repute, subscribed to our views and ultimately the Tatas had to abandon the project after sinking crores of rupees into the project.

In connection with a case filed by the fishermen cooperatives the Orissa High Court in November 1993 ultimately decreed against intensive and semi-intensive prawn culture in the lake. They permitted traditional method of prawn culture and that too by the pen method as a lesser evil on environmental grounds. They also directed the state government to evict all the encroachers in the lake, who were mostly outsiders. The outsiders are responsible for the induction of mafias into the lake for the protection of their activities.

Though the State Government started its operation to evict all these encroachers after the judgement, the work was stopped under the pressure of these encroachers who have high connections with ministers, politicians and high bureaucrats. So the agitation of the fishermen under the leadership of the Chilika Bachao Andolan continues. About fifteen thousand fishermen and women had a day long "DHARANA" at Chatrapur before the Ganjam Collector's office last June, 1994. A dawn to dusk "RASTA ROKO" and "RAIL ROKO" were staged in month of December to force the hands of the Government to evict all these encroachers. As long as this is not done and their mud walled prawn culture ponds are not demolished, giving way to traditional method of fishing, the future of the lake will be bleak.

Rapid siltation, decreasing salinity of lake water, explosive growth of macro-phytes turning them into weedy proportions, etc. are causes of great concern. But human activities for higher productivity without caring for the health of the lake is spelling disaster for the lake and the people around it.

The total impact area which is about 4200 sq.kms (including watershed area of 3000 sq.kms) is to be treated with short term and long term perspective plans if the unique ecosystem is to be preserved and perpetuated. Such a conservation and management plan should be designed to tackle the fast-growing problem of siltation which can be

resolved by creating a greenbelt of a few kilometers wide along the entire shoreline of the lake. The second most important aspect of this plan is to maintain and deepen the outer channel, particularly at Mugger Mukh which has been functioning as a channel for tidal water flow to the lake and as a route for migration of fish juveniles and other marine species including dolphins.

It is already late in the day and further delay will only expedite the process of eclipse of this great gift of nature.

#### **Fishermen's right of fishing in Chilika Lake :**

Near seas, rivers and water bodies including lakes, the fishermen communities mostly live to catch fish for their living. They were generally of lower caste in the Indian caste hierarchy. In course of time the places they settled in developed into big fishermen's villages.

That is the main reason why one finds about 122 fishermen villages around Chilika lake, though in other villages around the lake, fishermen households are found. In course of time their number has grown and it is at present around one lakh people.

Since Mughal and Maratha days, these fishermen have been living on Chilika by catching fish and historical records confirm this. That is why in the Settlement Report of J.H. Taylor in 1880 it is mentioned that the fishermen were in valid possession of the Chilika lake.

The report further mentions that in some cases, non-fishermen have taken leases, but these were subleased to fishermen. These leaseholders were virtually intermediaries or middlemen. So he advocated that these middlemen should be removed and the real tenants who were the real occupants (fishermen) should be given the lease.

During the First World War the export of fish to Rangoon and outside Orissa became highly remunerative. So middle traders became a vital chain in the fishing trade and they exploited the fishermen taking advantage of their ignorance. To save the fisherfolk from exploitation,

the first fishermen cooperative society was formed at Balugaon much before independence.

With the abolition of the Zamindari system and Zagir Mahals (intermediary interests), all fishery sources in the Chilika lake vested in the Government in the early fifties.

According to the advice of Prof. A.F. Laidlaw a Canadian expert engaged by the State Government, primary fishermen societies with an Apex Society were formed and they were given lease of fisheries after Independence. The reorganisation scheme of 1959 has operated since then.

So all along from the pre-British days till long after Independence, only fishermen and later the fishermen cooperatives were being given lease of the fisheries of the lake. The customary rights of fishing communities were never challenged.

In the meantime when the fishing trade expanded and became profitable, the non-fishermen of the locality put pressure on the Government for obtaining leases by raising the question of their traditional rights. This happened each time when fisheries were being leased out. But the Government's Revenue Department never succumbed to the pressure.

Under these circumstances the Chief Minister in August 1965 ordered negating the representations of non-fishermen.

He wrote:

"Conferring of rights on people other than those who have got some sort of customary right, should not be attempted and if such a proposal as is before the Government, the implication should be very carefully examined. The Collector, Puri, may be told to inform the fishermen community that Government will maintain status quo and nothing will be done to create any apprehension or doubt in their mind".

But the pressure never abated. So with the change of Government on 15 July 1967 was issued a different order in which they admitted that " the non-fishermen in Chilika lake did not exercise any such rights" (customary rights of fishing) but granted some facilities of fishing with one Poluha per family between 1 March to 31st July every year only for domestic consumption.

In 1974 when I was holding the Revenue portfolio, the pressure of non-fishermen was as usual built up to obtain leases. After consultations with all departments having fishery sources under them. I decided that fisheries in the state including Chilika should be leased out to the fishermen cooperative societies, wherever they exist or will come up. It was for promoting the economic interests of fishermen who were downtrodden in the society and also were traditionally living on this as their occupation.

**The order of 27.6.1974 inter alia stated as follows:**

"Fishery sairat sources in the state would ordinarily be settled in favour of bonafide cooperative societies, consisting of genuine fishermen and excluding middlemen and speculators, wherever the same exist or may come up in future."

Deliberately the word "bonafide" cooperatives and "genuine" fishermen were used to safeguard the legitimate customary right of fishermen.

Sometimes, attempts have been made to eliminate cooperatives to bring in non-fishermen on the plea of higher income for the State. Government has issued such circulars, but has relented before the mounting discontent of fisherfolk.

Prof. G.S. Das's study made in 1974 at the instance of the Government in the forest, fisheries and animal husbandry departments advocated continuation and also strengthening of the cooperative structure of fishermen. Subsequently, Governemnt of India's committee in the Ministry of Agriculture set up by their resolution of 22.12.1972

and the Conservation and Sanctuary committee in Chilika lake under Revenue Divisional Commissioner(Central Division) have recommended in favour of granting fishery lease to fishery cooperatives only.

On 27 July 1988 the Revenue Department issued guidelines of a scheme regarding lease of fisheries. It firmly mentioned that " all fishery sources of Chilika Lake shall be leased out in favour of Central Fishermen Coop. Marketing Society, Balugaon ", and this society shall have powers to settle/lease out the sources to the affiliated primary fishermen cooperative societies.

But suddenly, ignoring the customary right of the fishermen, the Government evolved a new principle for settlement of fisheries in Chilika lake arbitrarily in December 1991, which was not only unreasonable and illegal, but also unscientific and whimsical. Rightly, the Hon'ble High Court has stayed the operation of the order.

Any scheme or principle for lease of fishery rights should satisfy the following conditions.

1. *On no condition the customary rights of fishermen should be annihilated or sacrificed;*
2. *The livelihood of the fishermen which is as good as a right to life should be guaranteed;*
3. *Any change in the principle of lease should be done after consultation with concerned parties;*
4. *Environmental safeguards in shape of guidelines should be prescribed; and*
5. *The license fee should be fixed fairly so that it does not operate against the interest of the fishermen and through such indirect method, they are not compelled to abandon their only source of living.*

In this connection it is relevant to know the powers of the Government in case of a property such as a lake. Though it has vested

in the Government subsequent to the abolition of zamindari system, the community right over this property remains with people. Government can regulate the community right for maintaining the character of the property, but not for destroying its character. So community right can never be alienated.

Chilika might have vested in the State, but the community right of the people, particularly of fishermen cannot be alienated. Fishery right or Sairat is being leased out, but not as part of the property, so this lease is as good as a license to catch the fishery resources.

But strangely, a portion of the lake is being leased out for prawn culture lately, which changes the character of the property because of huge constructions. This has happened in case of the Chilika Aquatic Farm, a joint sector company of the House of Tata and Orissa Government.

Chilika is a communal property, not Government's property. In the land records of every village surrounding Chilika, the status of Chilika is mentioned as Rakhita Anabadi and classifications of the lake as lake. The Orissa Government Land Settlement Act 1962 with latest amendments prescribed procedures for settling Government land with individuals and institutions. In its definition of Government land in Section-2, "Rakhita Anabadi" is included. So Government has no power to lease out or settle the Chilika lake with anybody because it will change the character of the land. Whether it is Chilika Aquatic Farm or anybody else, the Government cannot alienate it in its favour. It is so in case of a lake, or river or ocean or any water body, which is nature's gift or nature's property.

Unfortunately, Government is considering leasing out a portion of the lake to the Chilika Aquatic Farm under the Orissa Land Settlement Act and has already given advance possession on which construction has taken place. If Chilika lake is not leasable, the advance possession is also illegal. The committee is requested to look into this aspect because on the plea of culture fishery, the legal implication cannot be thrown to the winds.

Such type of permanent structures obstruct the free flow of flood waters of Daya, Bhargavi, etc. through the lake to the sea because it happens to fall on the path of discharge of flood waters, which is illegal under the Irrigation Law.

If such activities are allowed, then gradually the fisherman's customary rights will also be jeopardised because fishermen use those areas as fishing grounds for their livelihood and in summer as grazing ground by thousands of families.

Chilika lake or land mass of Chilika lake (area from where water recedes after the rains), if given away part by part, will also affect their livelihood because they catch fish in those areas in a particular season or for the whole year.

The same thing has happened in case of OMCAD, which has already taken thousands of acres of Chilika depriving thousands of fishermen of their livelihood. Though they have taken it a decade ago, they have not been able to do anything until now. This is not only illegal, but it militates against the interest of the state and the fishermen.

Taking advantage of this illegal and unscientific policy about Chilika's fishery resources, large scale encroachments have taken place. Sometimes these encroachers take advantage of local conflicts between fishermen and fishermen and also between fishermen and non-fishermen and encroach upon Chilika lake and also mostly on the shores and within few metres inside the shores. Administrative collusion, political pressure and patronage have helped them to stay and mafias are inducted to enrich themselves.

Unless a clear policy is framed scientifically and enforced strictly, fishermen will lose their customary rights, human rights will be butchered and in the end Chilika, which is in a transition stage to eclipse, will vanish. Transparent and peaceful Chilika will be the play ground of mafias who will turn it into a huge cess-pool of pollution. That will ring the death-knell of the lake, which is nature's gift and humanity's property, not Government's property.

### Environmental problems of Chilika Lake :

Prof. C. K. Varshney, Dean, School of Environmental Science of Jawaharlal Nehru University is of the opinion that Chilika Lake has "a distinctive ecological character which has no parallel in the tropical world." He further says:

"Chilika lake ecosystem is very strategically sandwiched between terrestrial and marine ecosystem. Ecologically Chilika lake is a transitory system representing a serial stage of hydrosphere. The natural process in a normal course will bring about progressive changes in the character of Chilika lake ecosystem overtime. Human activities in near and distant watershed areas of the lake as well as within the lake, will in form of capture and culture fisheries, exert additives or perhaps synergetic influences."

(Workshop in Bhubaneswar in February, 1992)

Somnath Bandyopadhyay and B. Gopal, from the School of Environmental Science, Jawaharlal Nehru University in a recent paper published in the journal of the Indian Association for Limnology and Oceanography (Aquatic Sciences in India) have described the causes of concern in Chilika, and also the depleting fish resources. *Inter alia* they state :

"Rapid siltation, decreasing salinity, and explosive growth of macrophytes turning them into weedy proportions are accompanied with a number of changes, which are a cause of concern for the future of the lake Chilika. Most important of them are decline in fish yields and shrinkage of lake area. Various estimates show that since 1925, the lake area is decreasing by 1.45 to 1.6 sq.km per year (Das and Samal 1988, Das, 1988). This is largely attributed to siltation in the northern sector as well as massive reclamation of marginal areas for agriculture, aquaculture, salt-pans, construction, etc."

The fishery yield fluctuated between 2000 and 3000 Mg from 1948 to 1965 without exhibiting any definite trend. In spite of an increase (about 54%) in the fishermen population from 1948, the fish yield remained more or less the same for 18 years (Jhingran 1982). This might be because 63.4-74.5% of the lake's production depends upon recruitment from the sea. (Jhingran and Natarajan 1966).

They have also described other causes of concern like shifting of lake mouth, siltation at the Mugger Mukh and consequent reduction in the tidal impact, introduction of modern technology, increased number of traps, specially around the Mugger Mukh, use of nylon nets, indiscriminate catching of fingerlings and gravid females which have woefully led to over-exploitation of stocks. Another great concern is about destruction of habitat for migratory birds.

These are, in a nutshell, the ecological problems of the lake. The life of the lake depends on removal of these causes on which availability of the fishery resources will be determined. Until now an ecosystem perspective for a management programme of the lake has not been evolved. That is why we have all along demanded the setting up of a multi-disciplinary group which can draw up the required management strategy and programme. Otherwise a sectoral approach to the problem will not be able to correct the fragile ecosystem of the lake.

Because of the peculiar ecosystem with biodiversity, the lake has been designated under the Ramsar Convention as "a wetland of international importance." When India signed the Convention in 1981, it made a commitment to the world community to preserve the lake and its eco-system with biodiversity. The convention also expects that for utilising the natural resources, we should make "wise use" of it so that with conservation of the ecosystem, exploitation of resources do not create any adverse environmental problem.

Last year's biodiversity treaty at Rio (1994) also enjoins upon us the responsibility to preserve it because Chilika is the best repository of various flora and fauna. As the Government of India has made

these commitments, both the Union Government and State Government should live up to this international commitment.

The Indian Constitution also enjoins upon the Government and every citizen the responsibility for preserving and improving the environment of lake under Article 48-A (Directive Principles) and under Article 51-A (Fundamental Duties). Article 51-A specifically mentions the duty of every citizen to protect and to improve the environment including "lake". So it is as much a duty of the state as much of a citizen. These articles may not be justiciable, but violating these articles is equally dangerous and harmful. Morally it is more fundamental than fundamental rights.

Environmental degradation of lake has been caused both by natural intervention and human intervention. Both are inter-related, because forest destruction around the lake and on estuaries of rivers has caused heavy soil erosion leading to siltation of the lake. Agricultural operation specially of the high-yielding variety have led to soil erosion and consequent siltation and pollution of lake water.

But major environmental hazards to the lake has been caused by siltation of the lake. The rivers like Daya, Bhargavi, Nuna, etc. carry huge quantities of silt in the flood season and deposit it in the lake. Similarly the streams flowing from the surrounding hills which have been deforested. Unless it is checked and the catchment area is treated with proper afforestation and soil conservation measures, siltation can never be reduced. It is the first priority.

Equally important is the stabilisation and deepening of the channel mouth at Mugger Mukh which connects the lake with sea. This can be done on the basis of scientific study, otherwise more harm will be caused to the lake by haphazard dredging. Longevity of the lake can be ensured by proper and scientific approach. Sandcasting of the Mugger Mukh and lake mouth are the cause of decreasing salinity, which has affected the fishery population and flora and fauna of the lake.

Present fishing methods, whether by capture or culture also contribute to the degradation of the lake's ecology and consequently natural resources get gradually depleted. Ultimately the fishing resources which sustained the population in the past, cannot sustain a rising population. This is a grave concern the solution of which cannot brook any delay.

Jhingram and Natarajan (1966) made several recommendations to augment the fishery yield.

"These included restrictions on the size of the fish harvested, stabilisation of the position and width of the lake mouth, deconcentration of traps in the Muger Mukh area, rejuvenation of the Palur canal, stocking of the lake with mullet fry using hormone administration and induced breeding and improvement of culture fisheries."

With prawn becoming a lucrative foreign exchange earner in the international market, a new and complex situation has arisen in recent years. This has increased the social tension in the area and has caused environmental hazards. Persons and farms in large numbers have encroached into the lake illegally and have started extensive prawn culture, over-exploitation of resources, and reckless methods have added to the pollution problem. Money and politics have played havoc and mafia raj has been introduced.

Unless the lake is cleared of these illegal encroachers, nothing can be done to make the environment of the lake safe and to protect the fisherfolk. Sustainable development and human rights are being sacrificed for greed of vested interests.

On top of it has come the idea of so called scientific commercial prawn culture by the Chilika Aquatic Farm of the Tatas and the State Government. Once this type of prawn culture by any body is allowed, no conservation measure for the lake will succeed.

In South-East Asian countries, intensive and semi-intensive technique of prawn culture has been tried. The common fisherfolk have been eliminated, small entrepreneurs have been pushed to the wall. Entire coasts have been environmentally destroyed within a few years. Now everywhere from Taiwan to Thailand, intensive prawn culture has been stopped or banned or discouraged. They are only adopting semi-intensive or extensive methods which again has created many problems. Coastal mangrove forest has been the first casualty.

But in lakes and lagoons, the experience of intensive or semi-intensive technology has proved to be a curse because it is a covered area or a sheltered type of environment. It is more vulnerable to kills of fish.

The Canadian International Development Agency (CIDA) which was invited by the Indian Government and by the State Government for the integrated resource development of Chilika has submitted its "Chilika Lake Project : Feasibility and Design Report in 1992 (April) comparing it with the conditions of Sangkhla lake in Thailand which has same features as Chilika lake. The report writes against intensive and semi-intensive method to be adopted in Chilika. It recommends the followings:

"Knowledge related to shrimp farm development gained at Sangkhla, indicates that intensive or semi-intensive farming should not be carried out on Chilika lake, unless conduits for disposing of nutrient rich effluent directly into the sea are provided."

(Appendix III : Potential Impacts of Shrimp Farming, Page 47)

In the case of Chilika Aquatic Farm (CAP), the entire effluent of the big ponds will be discharged to the Bhubania river and through the outer channel to the sea. All these are part of the lake in the rainy season and though in summer the Bhubania river dries up, the effluent will go to the outer channel through the bed of Bhubania river and will be pushed back to the lake because of tidal action. So there is

no question of a direct conduit to the sea. The quantity of effluent water is also very high because of daily discharge from the ponds. Besides that, during harvesting, the whole water of the ponds will be discharged to the lake.

The eminent brackish water aquaculturist of India Dr. Mrs. Rajyalakshmi who was the Principal scientist of the Central Institute of Brackish Water Aquaculture under Indian Council of Agriculture, (recently retired, but continuing as Professor Emeritus) wrote to me as follows on 27 April, 1993.

"It is well known that semi-intensive and intensive prawn culture has brought tremendous disease occurrence in Taiwan within two years of its initiation. That happened even in a open sea-water-fed pond system of Taiwan. In an enclosed body as a lagoon with only one point of water entry, the system can be stressed severely, if effluents from semi-intensive system are released into the system or close to it. I do feel that it is much better not to introduce semi-intensive farm technology into this lagoon.

I am very happy indeed that some people are so intensely conscious of the environmental 'tragedies' that may arise out of man's over-greed and unscientific approach to brackish water farming in the lagoon ecosystem."

The eminent internationally reputed Aquaculturist of the Aquaculture Department of South East Asian Fisheries Development Centre based in Philippines Jurgenne. H. Primavera ( who was associated with the World Bank and Asian Development Bank as Aquaculture expert for a long time and has authored many books) wrote to me in connection with Chilika on 22 December 1992 as follows:

"The lesser evil would be to utilise technology that does not stress the environment in terms of organic and nutrient loading chemical use, and water/power requirements. In contrast Chilika lake in Orissa still has to be developed. Therefore you stand a better chance of keeping pond development to the minimum, invoking the Ramsar Convention, and citing the social displacement and environmental degradation that are possible consequences. At the same time, you may suggest to the Government that preserving the estuarine areas needed by prawn to complete the life cycle will maximise near shore/off shore prawn catches."

When in the prawn culture on coasts and shores intensive methods are being abandoned in all South-East Asian countries and semi-intensive method is also controversial, there is no question of trying it in lakes or lagoons.

From the environmental and common men's livelihood angle, the prevailing extensive method may be continued by removing the hazardous factors implicit in it. Under no circumstances should the environmental aspect be sacrificed for higher production or productivity. Considering all these factors the Government of India has not given clearance to the CAF project and will not give similar clearance to any forthcoming project based on semi-intensive technology. Unless a multi-disciplinary team consisting "among others, a limnologist, a hydrologist, a fisheries biologist and a wild life expert (preferably an ornithologist) to carry out environment assessment study of the project" is set up the CAF project has no chance of getting clearance (Letter of Environment and Forest Minister Sri Kamal Nath to Rabi Roy, M.P. and ex-speaker of Lok Sabha).

To prevent tampering with the lake's environment in the name of development, the Union Government in the Environment Ministry is examining the possibility "to notify the Chilika lake as an ecologically sensitive area" (Answer by Sri Kamal Nath to an unstarred question

No.4680 of Sriballav Panigrahi, M.P., in Lok Sabha on 22 December, 1992).

In view of expert opinion in India and abroad and in view of the experience of different countries of the world, semi-intensive technology or intensive technology for prawn or any type of aquaculture should be totally prohibited in Chilika lake. Even for aquaculture on the coast of Orissa, sufficient precautions and environmental safeguards should be taken while permitting semi-intensive prawn culture. The intensive culture should be totally prohibited on the coast, not to speak of lagoons.

In this connection, it will not be out of place to refer to the recent judgement of the Calcutta High Court regarding Calcutta wetlands, which can never be compared to Chilika lake. The Hon'ble Court in its judgement of 24 September, 1992 has prohibited the State of West Bengal to reclaim the wetland for developmental activities on the ground that wetland in which all pollutants of Calcutta City is poured into, still functions as the 'Lungs of Calcutta City'. Extensively quoting the policy of different countries of the world, experts and environmentalists, the Hon'ble High Court has asked for its conservation.

Chilika is many times more important to Orissa, India and to the world and it is a part of world's ecosystem. Not only it is to be conserved, but should be improved. Many experts advocate that besides protecting Chilika, a few kilometres around Chilika should be declared an effluent-free zone by regulating industrial, agricultural, and commercial activities so that Chilika does not die early, and it is allowed to have a longer life. So protection of its ecosystem is the fundamental duty of every citizen.

Orissa Krushak Mahasangh and the Prime Minister of India are getting hundreds of letters every month from environmentalists and human activists of Europe and the U.S.A. expressing their concern about Chilika lake. They are also writing protest letters to the Orissa

Chief Minister and to the firm of Tata. It has already generated global concern.

According to the New Standard Encyclopedia (Vol.V), the stability of an ecosystem depends largely on the successful interrelation of organisms in regard to food. This interrelationship is called the food-web consisting of non-living components and living components or organisms.

Chilika is a wonderful illustration of repository of this food web. Tampering with one element may have disastrous effect on the other and ultimately on the whole structure. A pond can be replaced, a tree can be replaced. But with all the wealth, intelligence and expertise of the world, a lake cannot be replaced. So let us not do anything in the name of development so that this prestigious lake-the pride of Orissa since the ages and a gift of nature for humanity - vanishes from the face of the earth.

[ This was written when the matter was pending before the Hon'ble Orissa High Court. In the final judgement, the High Court did not accept all the contentions regarding fisherman's rights, but accepted broadly the contentions regarding environment of the lake.]



## FUTURE OF CHILIKA FISHERMEN

= A life of struggle and despair =

About one lakh of fishermen, who are living in villages surrounding this brackish water lake, Chilika in Orissa, are passing through very difficult days of their lives. For ages, this lake has been their resource base for living. As days go by, this limited resource base cannot fulfil the increasing demands of an evergrowing population.

Since Marhatta days, the local chieftains, who were controlling the lake were leasing out the fishery resources of the lake to the local fishermen living on the periphery of the lake. Even during the British days the local zamindars usually used to lease the fishery sources to the same fishermen community. In course of time the habitations of the fishermen grew into big villages and by now they are about 122 in number. There are other villages surrounding the lake where upper caste people predominate, but in them there are fishermen bustees also.

There are various subcastes amongst the fishermen, though by and large two subcastes, Pana and Kandara - predominant. But all of them are regarded as Scheduled Caste. Relations amongst these sub-castes have been harmonious and fishing has been their most important occupation.

Most of them are landless labour. A very small percent of them own small pieces of agricultural land. Their dependence on agriculture is so minimal, that their economic condition practically depends on the fishing potential of the lake.

By the time the independence of the country came, they were mostly indebted to the local money lenders for fulfilling their social commitments and for purchase of equipments like country boats and nets. With development of communication, Calcutta provided the biggest market for fishery resources caught in the lake. So a class of middlemen traders grew who functioned both as a trader for their catch and as a money lender for their day to day needs. These traders became the greatest exploiting class and the fishermen community virtually became a class of bonded labour.

During the fifties, when popular government was established, move was afoot to free the fishermen from acute exploitation and abject bondage from the middle class traders. With assistance of a Canadian expert, the government started a scheme to bring the fishermen community under the cooperative banner. They were organised under more than fifty primary cooperative societies and all these primary cooperatives were integrated to a Central or Apex Society, that is, a federation. The Apex Body used to take all the fishery sources of Chilika on lease from the government and used to sublease to the primary societies. The Apex Society was giving loan to fishermen for purchase of equipments and was purchasing the entire catch of the fishermen for marketing. It was being mostly sent to outside, particularly to Calcutta market, where Chilika fish, crab and prawn were very prize commodity. Thus the exploitation of middle man ended and the condition of fishermen community began to improve.

But this was short-lived. After a decade or so, the condition of the Apex Society deteriorated due to lack of support of Cooperative Banks and bureaucratic control of the administrators of the government. Though the government continued to lease the fishery sources to the fishermen cooperatives, gradually again middlemen traders appeared in the scene and with their purse strings, could influence a section of cooperatives to sell their catches to them by taking advance loan. There was constant pressure on government by non-fishermen of the locality to take a share of the fishery resources of the lake on the plea that they are also local men living on Chilika. Behind

this game, there were a few taders of outside who wanted to enter Chilika lake and control the resources.

Despite these pressures, when the present President of Orissa Krushak Mahasangh (who is the leader of the Chilika Bachao Andolan) became the Revenue Minister of Orissa in early seventies, he was responsible in having a regulation to the effect that all fishery resources of the State including Chilika lake would be leased out only to the genuine cooperatives of banafide fishermen. Because of this regulation, not only auctioning of fishery resources was stopped, but also fraudulent societies virtually managed by non-fishermen were debarred from lease process. This is continuing uptil now, though in action it is violated sometimes under the pressure of politicians and vested interests.

Towards the beginning of eighties, when prawn became a prize exportable commodity in the international market, the situation in the country and in Chilika lake started deteriorating fast. The non-fishermen community in Chilika area started having an eye in the lake for prawn. Outsiders including businessmen, close relations of politicians and high bureaucrats through local non-fishermen started forcibly occupying fishery sources for prawn culture. Some times they made some fishery cooperatives their agents by depositing lease money with government on their behalf and advancing loan to their leaders. In this process the mafia raj operated in the lake and the fishermen were being gradually squeezed out of the resources with the money and muscle power of these intruders.

At this point of time the Tatas with collaboration of the Orissa Government began starting prawn culture with semi-intensive method in one part of Chilika near Panasapada in Brahmagiri P.S. of Puri District. The neighbouring villages became agitated against this project as it would have caused disaster to their livelihood. In 1991 a group of Utkal University students started a movement against Tata's entry. Subsequently the Orissa Krushak Mahasangh entered the fray to protect the livelihood of fishermen and local non-fishermen. Rallies, Demonstrations, meetings and conferences continued to force the Tatas

to abandon the project. The police under the instructions of the political power started repression and arrests of protesters. As the movement was localised because three or four villages were directly affected by the Tata Project, the administration was able to suppress the movement.

Orissa Krushak Mahasangh gave a new dimension to the movement from 1992 to keep up the morale of the people by raising the question of environment of the lake along with impairment of livelihood. By this all the villages around the lake were involved because they felt if Tatas are allowed to enter, other big businessmen will follow suit for earning foreign exchange and big money. The lake will die an unnatural death. Because of modern technology, the water of the lake will be highly polluted in a few years due to effluent discharge from prawn ponds and as a consequence the fishery resources will dwindle. This evoked support of all fishermen of Chilika and of broad mass of people of the locality and outside. This made the movement broad based and powerful.

One peculiar phenomenon of this struggle was that when more and more fishermen and women came under the influence, the non-fishermen community of the local area became lukewarm in their support, though never opposed it. The fishermen community participated massively because it was a question of their livelihood. The question of environment and ecology of the lake played a small part for them, though they gradually understood that protection of ecology of the lake will ensure growth of more and more of fishery resources in the lake, which is their main concern for livelihood. This new dimension of struggle brought support of even outside world and the country's media. Parliament Members of different parties lent their support by writing letters to Prime Minister to stop Tata Prawn Project and save the environment of the lake. Such remarkable support from all quarters made the movement broad - based and the Chilika Bachao Andolan was born in a massive state level convention in Bhubaneswar in October, 1992. At last the Government of India intervened and the project which was half way, was stopped because of non-clearance

by Union Environment Ministry. After more than two years of struggle, Tatas had to go back with their bag and baggage. Sri Ratan Tata in January 1994 wrote a letter to President, Chilika Bachao Andolan, Sri Banka Behary Das on behalf of the Tatas and quit Chilika lake without any rancour. This is the beauty of the peaceful movement run on Gandhian principles.

The struggle exhibited the might of the fishermen, but the role of the fisherwomen was exemplary. In every meeting, conference and demonstration, at least one fourth of the crowd were fisherwomen. To bring them in larger number to the movement separate fisherwomen conferences were held in different localities of the lake and all of them were tremendously successful. Many educated girls of the fishermen community joined this movement. There were some 'Mahila Samities' of fisherwomen in some of the villages. They were in moribund state. They were all mobilised and integrated with the Chilika Bachao Andolan through these women conferences. It was our experience that the fisherwomen played a major role in the movement and they have larger share in the successful battle against the Tatas.

Tatas have gone, but smaller Tatas rule the roost. High-tech-prawn culture has not been allowed into the lake. But the encroachers have entrenched themselves in the area with the open support of local non-fishermen, political leaders and high bureaucrats. The nexus is very powerful and unless all these encroachers are removed, the fishery sources of the lake will not return to the hands of the real owners, that is, the fishermen community, the traditional indigenious masters of the local resources.

Before the Tatas formally left, some of the local fishermen cooperatives went to the High Court to assert for their fishery rights because the government decided to classify the fishery sources into two categories, that is, capture fishery and culture fishery. The purpose was to give a share of the fishery sources of Chilika lake to non-fishermen. But the judgement of the Orissa High Court did not solve the problem of fishermen. It upheld the classification made by the Orissa Government. While acknowledging the 'traditional right of the

fishermen community' on Chilika fishery sources, it directed the Government to lease out a portion of the fishery sources to the local non-fishermen also for the purpose of maintenance of harmony amongst both the communities. But it will not be easy to have such a situation as long as non-fishermen of outside are really the masters of the area with the backing of these people. The Hon'ble Orissa High Court also directed the Government to remove all the encroachments forthwith, while giving fresh lease to the fishermen and to local non-fishermen. The court further directed that it should ensure that prawn culture is conducted on extensive method and that too, through pen culture method only. In one way it was good that intensive, semi-intensive or modified extensive methods of prawn culture were barred in the lake for future and no corporate giants will have interest to step in. But the present system of prawn culture is continuing because the Government immediately removed a few encroachments, but under the pressure of the present nexus, most of the encroachments were not removed and are continuing. This has made the condition of the fishermen miserable. They have not been able to get their legitimate right, even according to High Court decision. It is sheer affront to the High Court, on the part of the State Government.

To force the Government to evict the encroachers, the Chilika Bachao Andolan in its second phase of struggle gave a call for '*RASTA ROKE*' and '*RAIL ROKO*' on December 14, 1994. It was a tremendous success and the National Highway No.5 and the Madras-Howrah railway track for a section of 50 kilometres long was completely paralised for twelve hours from dawn to dusk on that day. In every point fisherwomen took a leading part along with their brother fishermen. But things have not changed uptil now, though the Government changed soon after.

As long as all the encroachers are not removed from the lake and the fishery resources are leased to the fishermen cooperatives the woes of the fishermen will not end. The struggle will go on and on, till the goal is not reached.

In the meantime the fishery resources are dwindling in the lake because of steep ecological degradation of the lake caused by human intervention (including state intervention) and natural intervention. Because of heavy siltation due to flood water of the Daya, the Bhargavi and other small rivers which flow into the lake, the depth of the lake and the area of the lake are slowly dwindling. The heavy flood water cannot be easily discharged to the sea through the lake because of chocking of the mouth of lake at the sea. This also causes the water quality of the lake which was saline, gradually to change. This ecological degradation affects the fishery resources greatly because the species of fishes that were available earlier are gradually becoming non-available due to change of quality of water. Moreover due to wide-scale catch of fish seeds to cater to the needs of coastal prawn culture industry, the stock of fish in the lake is getting depleted. Because of gradual chocking of outer channel and Palur canal which also connect the lake to the sea the migration of wild seeds of different fishes from sea and from Rushikulya river mouth is also greatly hampered. These are the main causes for which the catch of the fish during last Five years has dwindled by half. This has further worsened the condition of the fishermen community. They have been marginalised and they are faced with hunger and deprivation.

New technology or even appropriate technology to enhance their productivity, has no relevance to them. The new economic policy which centres on export promotion, has brought no solace to them because they have been victim of prawn-dollar. As long as they are not masters of their own natural resources on which they have been living uptil now, no development strategy or introduction of new technology is going to benefit them. The first concern should be not to displace them from their traditional livelihood. Then only any technology or development strategy has any meaning for their lives.

That is the lesson of all struggles, whether the battlefield is Chilika, or Puri-Konark sea beach or the entire coast of Orissa dotted with prawn ponds. A man who is not master of his delapidated hut, will never run after the mirage of a concrete structure however alluring

it may be. That is why protection of ecology and protection of livelihood of a common man, are two sides of the same coin and one cannot be divorced from the other. On this base only the pyramid of development can stand, otherwise the so called development will collapse like a house of cards.

(This paper prepared by Orissa Krushak Mahasangh was presented in a workshop held in December, 1995, in Bangalore)

## CHILIKA LAKE: SALIENT FEATURES

1. **Geographical location :**
  - Latitude : 19° 30' to 19°54' N
  - Longitude : 85° 6' to 85° 35' E
2. **Water spread area:**
  - Summer : 906 sq.km.
  - Monsoon : 1165 sq.km.
  - Average water spread area : 1055 sq.km.
3. **Depth:**
  - Average depth of water in summer : 0.94 to 2.63 m
  - Average depth of water during the monsoon : 1.78 to 3.7 m
4. **Length of outer channel from lake to barmouth** : 35 km
5. **No. of lake mouths at present** : One, Opposite to Arakhakuda village
6. **Total number of rivers and nullahs feeding the lake** : 10
7. **Salinity(average over the lake)** : 2.8 to 29.8 ppt.
8. **Fishermen**
  - Total population : 60,000
  - Active fishermen : 15,500
  - Number of fishing villages : 122
9. **Total No. of boats (non-mechanised)** : 4400
10. **Total No. of nets** : 21,065
11. **Total catches from lake annually** : 6208 M.T. (in 1985)
12. **Different fishing methods and percentage of catch in quantity:**
  - (a) Bahan (Net fishing) : 60%
  - (b) Jano(Enclosure by bamboo screen) : 15%
  - (c) Traps (Prawn Fishing) : 25%

## CHILIKA LAKE (CHILIKA BACHAO ANDOLAN)

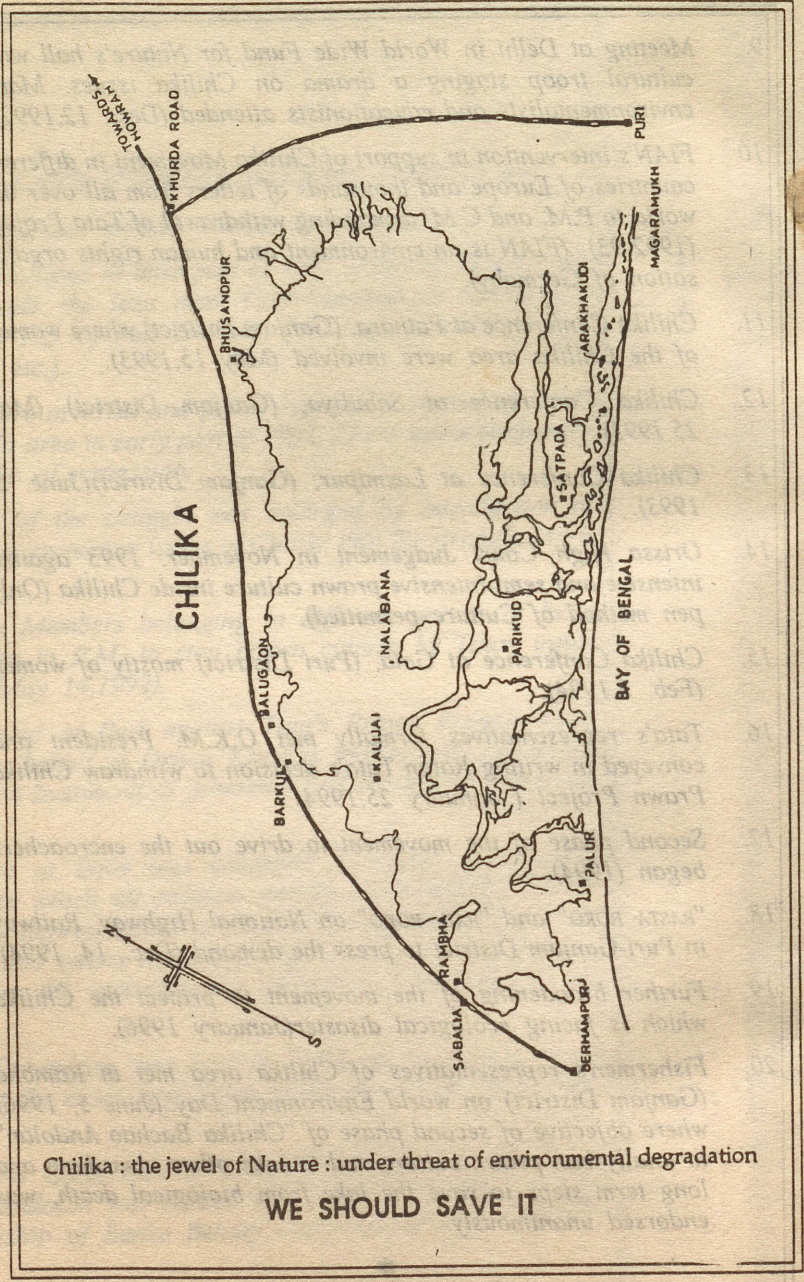
### (Important events during movements)

1. *Movement initiated in later part of 1991 opposing Tata Prawn Project inside the lake near Gola-Panasapada villages in Brahmagiri P.S. of Puri District. (Meetings, demonstrations, procession etc.).*
2. *Activists were arrested and police repression started in Gola-Panasapada area in early part of 1992. There was a temporary lull because of repression.*
3. *Dimension of the struggle was enlarged by introduction of environment protection issues of Chilika into the struggle (April 1992).*
4. *Parliament Members belonging to different parties of India wrote letter to P.M. to stop prawn culture by Tatas inside Chilika: (May 14,1992).*
5. *Seminar held at Puri against Tata's Prawn Project inside Chilika on behalf of Orissa Krushak Mahasangh (OKM) and its effect on livelihood of fishermen and ecology of lake (June 21,1992).*
6. *Conference at Delhi was convened by Union Environment Minister to which all political party's Parliamentary leaders of Orissa, Representative of Orissa Krushak Mahasangh and of Tatas and others invited. Decision taken to stop work of the project till environmental clearance is obtained ( July 30,1992).*
7. *Chilika Convention was held at Balugaon to involve in the movement the entire population living around the lake (Sept., 27,1992).*
8. *State Level Conference at Bhubaneswar held where Chilika Bachao Andolan was floated with a State Committee under Presidentship of Banka Behary Das (Novemebr 1, 1992).*

9. *Meeting at Delhi in World Wide Fund for Nature's hall with cultural troop staging a drama on Chilika issues. Many environmentalists and educationists attended (Dec., 12,1992).*
10. *FLAN's intervention in support of Chilika Movement in different countries of Europe and thousands of letters from all over the world to P.M. and C.M. demanding withdrawal of Tata Project (1992-93). (FLAN is an environment and human rights organisation of Germany).*
11. *Chilika Conference at Pathara, (Ganjam District) where women of the Chilika area were involved (May 15,1993).*
12. *Chilika Conference at Sabuliya, (Ganjam District) (May 25,1993).*
13. *Chilika Conference at Laxmipur, (Ganjam District)(June, 5, 1993).*
14. *Orissa High Court Judgement in November, 1993 against intensive and semi-intensive prawn culture inside Chilika (Only pen method of Culture permitted).*
15. *Chilika Conference at Gola, (Puri District) mostly of women (Feb. 5,1994).*
16. *Tata's representatives formally met O.K.M. President and conveyed in writing Ratan Tata's decision to withdraw Chilika Prawn Project ( January 25,1994).*
17. *Second phase of the movement to drive out the encroachers began (1994).*
18. *"RASTA ROKO" and "RAIL ROKO" on National Highway, Railway in Puri-Ganjam District to press the demand (Dec., 14, 1994).*
19. *Further broadening of the movement to protect the Chilika which is facing ecological disaster(January 1996).*
20. *Fishermen's representatives of Chilika area met at Rambha (Ganjam District) on world Environment Day (June 5, 1996) where objective of second phase of "Chilika Bachao Andolan" to totally ban prawn culture and to take other immediate and long term steps to save the lake from biological death, was endorsed unanimously.*

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