



ইউএনইসি পরিবেশ তথ্য কেন্দ্র

# ENVIS CENTRE MANIPUR NEWSLETTER

ENVIRONMENT & ECOLOGY WING, GOVT. OF MANIPUR



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**Slow Loris  
(Yong Ikaithibi in Local )  
released at Tokpa  
Village forest of Manipur**

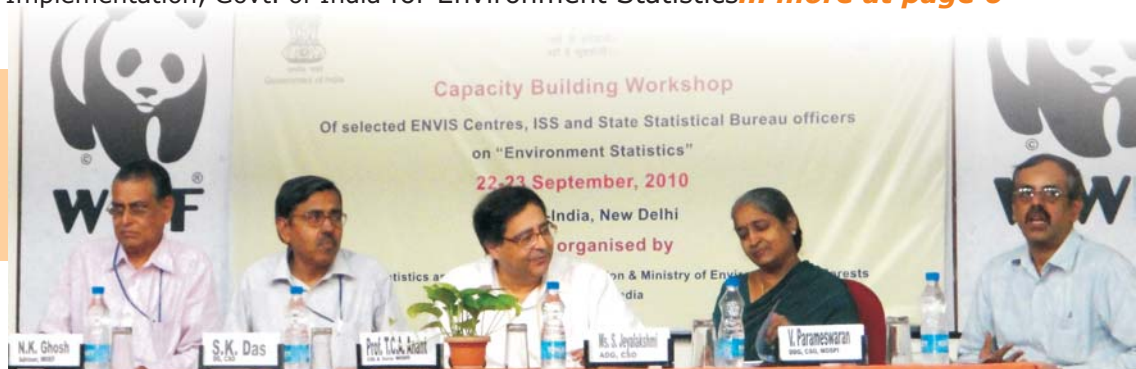


## WILDLIFE SCENARIO IN MANIPUR

### - a need for clarion call

Tigers, Elephants and Rhinos once roamed in the river valleys of Manipur; all have become a myth today. There are unconfirmed reports of sighting of the Tiger in parts of Manipur, particularly in the Khoupum valley of Tamenglong district and of the Rhino in Ukhrul district along the Manipur-Myanmar international border. There are again reports of a small herd of Elephants in the Lemta area of Tamenglong district. The tragedy is that there are no serious attempts, either from the government's side or individual organisations, to verify these reports in the field. On the other hand, the whereabouts of the Nong-in (Mrs.Hume's Bar-backed Pheasant *Hume hume symrticus*), the State Bird of Manipur too, still remain to be located, though there are reports of having its habitat in the temperate forests of Shirui-Kashong range in Ukhrul district. At the same time, the population status of the Kalij pheasant or the Great Indian Hornbill is also yet to be ascertain in the State . ... more at page 2-3

... State ENVIS Centres discussed with Ministry of Statistics & Programme Implementation, Govt. of India for Environment Statistics... more at page 6



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## WILDLIFE SCENARIO IN MANIPUR - a need for clarion call

**Salam Rajesh**

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Today a large number of wildlife found in the State had either disappeared or are about to disappear due to various reasons. Indiscriminate hunting, depletion of forest cover, and lack of a state policy for protection and conservation are the main factors for loss of the wildlife.

Manipur lies between Latitudes 23.80°N to 25.68°N and Longitudes 93.03°E to 94.78°E. Out of the total 22,327 sq.km area, around 20,571 sq.km of the State is hill area and the rest are plain area. The State is practically land-locked in the sense that it is enclosed on all sides by several hill ranges that are mostly North-South extending. There is an oval-shaped valley at the centre, and this is the hub of human settlement. The Loktak lake, which is said to be the largest freshwater lake in the eastern parts of India, is located towards the southern part of the valley. The lake, along with other wetlands in the valley, was feeding ground of several species of migratory birds and fishes. Changes in hydrological regime of the river systems, gradual drying up of wetlands and increased human activities have forced the disappearance of many species of birds and fishes.

The Barak and the Manipur river systems play an important role in the biological diversity in the state. The Barak feeds the northern and the western parts, while the Manipur river nourishes the central and the southern parts of the State. Some of the best instances of biological diversity are seen along the courses of these rivers and their several tributaries. The geophysical character of the State is interesting. The diversity ranges between subalpine grassland to humid dry deciduous forests, with the altitude varying between 2,990m MSL and 50m MSL. In a small compact area, one can find both dry and moist deciduous forests, semi-wet and wet evergreen forests, pine and temperate forests. Bamboo is dominant in Tamenglong district, while there is wide spread growth of rhododendron in Ukhrul district. The central Manipur valley is dotted with numerous large and small wetlands while there is a single natural wetland in Ukhrul district.



Birds slain by a local hunter in the Mt. Isso area along Manipur-Nagaland border  
Photo: Salam Rajesh

### Manipur in International scenario:

Manipur, along with the other seven northeastern states of Assam, Arunachal Pradesh, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura form a geographical entity termed as a highly important biodiversity hotspot in the world. This is to say that the region is endowed with mega diversity of flora and fauna some of which are found nowhere else in the world. For instance, the Siroy Lily, *Lilium macklineae* which flowers in the high peaks of Shirui-Kashong range and the Sangai, *Cervus eldi eldi* which inhabits Keibul Lamjao, are endemic to Manipur. Geographically, Manipur is located at a strategic point where two major macro-climatic zones merges in a seemingly unnoticed transition. The result is a healthy mixed population of flora and fauna that are found in the Indian subcontinent and those found in Southeast Asian countries. One typical site example is the Moulcham area in Chandel district along the Manipur-Myanmar international border, where there are good examples of the floral and faunal types that are found in the Indian mainland and those found in neighbouring Myanmar up to Indonesia.

### Manipur wildlife scenario:

The location of Manipur at the junction of the Indian and the Burmese plates is said to have influenced a wide variety of floral and faunal population. Rare, endemic and threatened species of flora and fauna thrive here. Much wildlife was reported by European explorers, and continue to be reported by researchers in the present times. The Anggo Ching mountain range which forms a natural barrier between Manipur and Myanmar, and which covers the entire stretch of Ukhrul District north-south, has good forest cover and much wildlife thrive here. It is believed that a small remnant herd of the Sumatran Rhino may be found in this area. The New Somtāl area in the southeastern part of Chandel District is a prime habitat of wild cattle and diverse floral species including orchids and tree ferns. Recently, it was reported that the skin of a tiger killed by villagers at Songphei under Tipaimukh block of Churachandpur district was sold for Rs.1.5 lakh. This village is located along the Manipur-Mizoram interstate border. Local sources informed that the tiger used to attack domestic animals of the village. It was also reported that a tiger was recently spotted prowling near



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Bhalok village of Tamenglong district in the western part of Manipur. In October 1996, a full grown tiger was reported to have killed at Khoupum valley in Tamenglong district. Another tiger also was reportedly spotted in the same area in July 1999. During the past four to five years, reports had come in about a small herd of wild elephants in the Lemta area of Tousem block, Tamenglong district. The Barking Deer (*Muntiac muntjak*) is commonly hunted in the State. So is the wild boar (*Sus scrofa*). Pangolin is sometimes found sold openly in the local market at Senapati town. There are several reports of poaching Hog Deer (*Axis procinus*), wild boar and other wildlife even inside the Keibul Lamjao National Park. Hornbill and pheasants are also being hunted for their meat and the bird parts like feathers and beak for trophy. Surprisingly, Box Turtles (*Coura amboinensis*) are found sold by women vendors at the local Khwairamband Keithel in the heart of Imphal. Tribals openly sell endemic and endangered species of orchids on the streets in Imphal. It seems that the stringent wildlife laws which ironically have not much teeth in the State.

#### To the rescue:

There has had been some effort at to rescue wildlife from conscious and unconscious offenders. Between July 2002 and September 2003, the Imphal unit of the People for Animals (PFA) rescued three Rhesus Macaque, a Stump-tailed Macaque, three Hog Badgers, a Slow Loris, an Indian Porcupine, two Box Turtles, a tortoise, four pythons, two cobras, a Lesser Adjutant Stork, eleven parakeets, a hawk, an Oriental Bay Owl, and some unidentified snakes. Between November 2003 and May 2004, the PFA team rescued a water lizard, two Barking deer, a Slow Loris, a Rhesus Macaque, an owl, two watercocks and two parakeets. There has had been many instances of rescue of Sangai and Hog Deer by local club volunteers in the Keibul Lamjao National Park area when the deer had strayed into the human habitation area due to disturbances happening in the park. Barking Deer often stray down from the hills into the nearby human settlements. Locals kill the deer for its meat. Barking Deer are sometimes sold openly in the local markets. But many a times, local club volunteers come to its rescue. The other



Sangai male rescued by locals at Keibul Lamjao

Photo: Salam Rajesh

mammal occasionally rescued is the Serow. On April 21 in 2004, a Slow Loris (*Nycticebus coucang*) was rescued by the PFA team and the animal was safely released at Tokpa Kabui village in Churachandpur district where the local community was successfully managing a community-owned forest. Not very long back, two Asiatic Black Bear cubs were rescued by PFA volunteers from a tribal smuggler near Kakching Lamkhai in Thoubal district. The bear cubs were later handed over to the Manipur Zoological Garden's officials.

#### Clarion Call:

There are limitations in carrying out wildlife rescues in Manipur. The mountainous terrain, bad roads and poor communication facility hamper swift and timely movement. By the time the rescue team reaches the spot, there is no trace of the animal reported. Again, due to lack of expertise and proper equipment, rescuers have a tough time in handling the animals rescued, particularly injured animals. The absence of vets who specialize in wildlife medicine handicaps timely and proper treatment of the injured animals and birds. It often happens that the injured animals and birds die within a short time of their rescue.

In March 1998, two Sangai doe were rescued from within the Keibul Lamjao National Park. A doe died at the spot as it was trapped with a nylon rope trap which entangled around its throat, while the other doe died later in Imphal after it was brought from Keibul Lamjao for

treatment. Perhaps, the second doe could have been saved if timely and proper treatment had been provided at the spot of rescue.

The Manipur Zoological Gardens perhaps has limited space and manpower to handle the number of rescued wild animals, birds and reptiles brought in by locals and other animal welfare organisations. There is no wildlife rescue and rehabilitation centre in Manipur. So, most of the times, the best option for the rescuers is to immediately release the rescued animal at a safe location, if the animal is healthy, or after providing first aid, if the animal is slightly injured.

Successful wildlife rescues can be achieved only when there is a well established rescue and rehabilitation centre at a suitable location in Manipur, centrally located so that people from the different parts of the state can have access to it comfortably. Secondly, there is a need for a networking of the wildlife wing of state foresting department and the various organizations and local bodies involved in wildlife rescue. Thirdly, there is a need for establishing of community controlled wildlife reserves where rescued animals, birds and reptile can be safely released. Fourthly, a strong support base in terms of funds, material and expertise is needed to achieve the goal. And finally, the wildlife laws must be enforced in the entire State in the true spirit and content of the text, otherwise wildlife depletion will continue.

## RESEARCH ABSTRACT

J. Aphidology, 21 (1 & 2) : 77-84, 2007

PREDATION AT LOW PREY DENSITY : LARVAL DEVELOPMENT, ADULT SIZE, AGE AT MATURITY AND REPRODUCTION IN COCCINELLA TRANSVERSALIS (FABRICIUS) ,(COLEOPTERA: COCCINELLIDAE)

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**Abstract:** effects of low and high aphid prey densities on development, growth rates, adult size, age of females at maturity, reproductive period, longevity, egg size and hatching success of eggs were evaluated in an aphidophagous ladybird predator of aphids, *Coccinella transversalis* (F.). results showed that each ladybird spent approximately the same proportion of its total development time whether larvae were kept at low or high prey density environment but larvae of low food environment took longer to complete development, suffered 66.66 % mortality and were smaller as adults in comparison to larvae that developed on high food environment. Female beetles of low food environment attained maturity at an advance age, laid fewer eggs of smaller size and many of these eggs did not hatch in comparison to females of high food environment. Females beetles of low food environment attained maturity at an advance age, laid fewer eggs of smaller size and many of these eggs did not hatch in comparison to females of high food environment which attained maturity at an early age, laid several times more eggs and majority of these eggs become larvae. Results bring out the importance of this predator as biocontrol agent which can survive even under severe food stress condition that helps to start a new life cycle on the black bean aphid, *A. craccivora*, a common pest of the bean crops.

**Key words :** Predation, low prey density, *Coccinella transversalis*, development, mortality, adult size, egg size and hatching success.

## TIME SERIES ENVIRONMENT DATA

### Water Quality of Some Lakes of Manipur during July - September 2010

| Sl. No. | Parameters           | Sites/Lake |      |      |      |      |      |      |      |
|---------|----------------------|------------|------|------|------|------|------|------|------|
|         |                      | 1          | 2    | 3    | 4    | 5    | 6    | 7    | 8    |
| 1.      | pH                   | 7.72       | 7.46 | 7.39 | 7.56 | 7.82 | 7.14 | 7.33 | 7.45 |
| 2.      | B.O.D. (mg/l)        | 5.73       | 4.36 | 3.89 | 4.27 | 4.16 | 4.76 | 4.21 | 4.01 |
| 3.      | C.O.D. (mg/l)        | 11.26      | 9.42 | 9.86 | 9.28 | 8.42 | 9.67 | 9.26 | 8.76 |
| 4.      | Nitrogen (mg/l)      | 2.16       | 2.10 | 1.87 | 1.46 | 1.76 | 1.42 | 1.57 | 1.86 |
| 5.      | Phosphorous (mg/l)   | 1.59       | 1.46 | 1.52 | 1.26 | 1.39 | 1.46 | 1.56 | 1.17 |
| 6.      | Potassium (mg/l)     | 4.00       | 4.00 | 3.00 | 3.00 | 3.00 | 3.00 | 4.00 | 3.00 |
| 7.      | Total Coliform/100ml | 970        | 840  | 810  | 860  | 840  | 790  | 780  | 740  |
| 8.      | Faecal Coliform      | 540        | 410  | 490  | 420  | 420  | 470  | 420  | 410  |

Sites:- 1. Loktak 2. Ikop 3. Waithou 4. Aongbikhong 5. Kharungpat 6. Pumlun Pat 7. Sanapat 8. Utrapat

## DISTRICT PROFILE

### Thoubal District



The Thoubal District covering an area of 514 sq. km. is bounded by Imphal (East and West) district on the north, Ukhrul and Chandel districts on the east, Chandel and Churachandpur districts on the south and also by Imphal West and Bishnupur on the west. Although the district, which occupies bigger portion of the eastern half of Manipur Valley, the area of the district is not entirely plain. Many rivers flow through the district and many lakes dot its surface. Most of the important lakes of Manipur, with the exception of Loktak, are in this district. An international road (NH39) that leads to Myanmar (Burma) via Moreh and Tammu go through the district. The district came into existence in May, 1983. The district has two community development blocks one in each sub-division, each block coinciding with its respective sub-divisional areas minus the statutorily notified urban portion. It has 9 main towns. namely, Lilong ( Thoubal ), Thoubal, Yairipok, Shikhong Sekmai, Wangjing, Heirolk, Kakching, Kakching Khunou and Sugnu and a part of Samurou whose major portion is with the Imphal West District. Thoubal and Kakching are Municipalities.

Total Geographical area - 50700 ha  
 Population - 364140(2001 Census)  
 Average annual temperature -  
 Latitude - 23 45' N to 24 45' N  
 Longitude - 93 45' E to 94 15' E  
 Height - 790 m (MSL)

### Major Land Use / Land Cover Categories(1989-90)

| Sl. No | Category                 | Area (Ha) | % to the total District Area |
|--------|--------------------------|-----------|------------------------------|
| 1.     | Settlement               | 6569.1    | 12.96                        |
| 2.     | Agricultural Land        | 9675.02   | 19.08                        |
| 3.     | Forest Cover             | 288330.98 | 568.7                        |
| 4.     | Land with /without scrub | 148347.82 | 292.6                        |
| 5.     | Water Bodies             |           |                              |
|        | (a) Group - A            | 0         | 0                            |
|        | (b) Group - B            | 0         | 0                            |
| 6.     | Others                   | 4077.08   | 8.04                         |

Source : Manipur Remote Sensing Application Centre

## BIODIVERSITY OF MANIPUR

### *Cajanus cajan* (L.) Huth.

**Family:** Fabaceae

**Local name:** 'Mairongbi' (Manipuri); 'Arhar'(Hindi); 'Red gram'(English)

**Status and distribution:** Commonly found as cultivated plant.

**Brief description:** It is an erect branching shrub. The leaves are pinnately trifoliate and the leaflets are oblong-lanceolate and entire. Flowers are yellow and the pods have fine hairs with reddish purple streaks. The seeds are about the size of a small pea.

**Ethnomedicinal uses:** Skin infections, scabies, sores, eczema, acidity, stomach ulcer, and also used as face cream.



*Cajanus cajan* (L) Huth.

### *Celtis timorensis* Span.

**Family:** Ulmaceae

**Local name:** 'Heikreng' (Manipuri)

**Status and distribution:** Occasionally planted in homestead compounds.

**Brief description:** It is a tree having slender branches. The leaves are deciduous, very obliquely ovate, coarsely serrate, entire towards the base and glabrous above. The basal nerves are not produced into the tip with subulate stipules that are oblong and with obtuse sepals having woolly margins. The ovary is ovoid.

**Ethnomedicinal uses:**

Urinary tract stone, liver complaints, jaundice, piles worm, bronchitis and hypertension.



*Celtis timorensis* Span.

### *Calotropis gigantea* (L.) R. Br. ex Ait.

**Family:** Asclepiadaceae

**Local name:** 'Angkot' (Manipuri); 'Ak' (Hindi); 'Crown plant'(English)

**Status and distribution:** Common, cultivated as garden plant and also occasionally grows wild.

**Brief description:** It is a medium sized shrub having pale bark. The leaves are heart shaped, cottony on the undersurface and pointed at the tip. The flowers are simple or compound, axillary or sub-terminal. The seeds are ovate with white silky coma floss.

**Ethnomedicinal uses:** Scabies, sores, ulcers, skin infections, ring worms, tonsils, cuts, wounds and in tineaversicolor, other skin diseases, body pain, sciatica asthma, bronchitis and chest congestion.



*Calotropis gigantea* (L.) R. Br.ex.Ait

### *Chenopodium ambrosioides* L.

**Local name:** 'Tersing nambi' (Manipuri)

**Family:** Chenopodiaceae

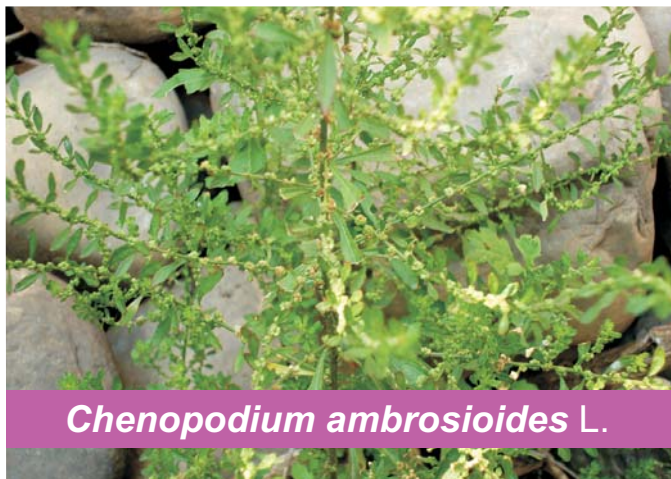
**Status and distribution:** Common, grows in the wastelands.

**Brief description:** It is a strongly aromatic, erect and small under shrub having angular branchlets that are ribbed. The leaves are oblong-lanceolate. The flowers are small in axillary and terminal panicles.

**Parts used:** Leaf and inflorescence.

**Ethnomedicinal uses:**

Worm infection, high body temperature and cough.



*Chenopodium ambrosioides* L.

## IN FOCUS :

### COMPLEX LINKAGES BETWEEN OZONE AND CLIMATE CHANGE

In 1994, The United Nations General Assembly proclaimed the 16<sup>th</sup> September of every year as the International Day for the Preservation of the Ozone Layer, to commemorate the signing of the Montreal Protocol on Substances that Deplete the Ozone Layer which was signed on 16<sup>th</sup> September, 1987. Simply, this day marks the signature date, in 1987, of the Montreal Protocol on Substances that Deplete the Ozone Layer. The Montreal Protocol is now addressing the accelerated phase-out of HCFCs as per the decision of the 19<sup>th</sup> Meeting of the Parties (MOP) to the Montreal Protocol in September, 2007. India, being a Party to the Montreal Protocol, has National Strategy to Phase-out of CFCs in the manufacture of Metered Dose Inhalers (MDIs) and it is targeted to eliminate the use of CFCs in MDIs by 2013.

The Scientific Assessment of Ozone Depletion Report 2010, published by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP), provides an understanding of the complex linkages between ozone and climate change. The report reaffirms that the Montreal Protocol is working as it has protected the stratospheric ozone layer from much higher levels of depletion by phasing out production and consumption of ozone depleting substances. In 2010, the reduction of ozone depleting substances as a

result of the Montreal Protocol, expressed in CO<sub>2</sub>-equivalent emissions, i.e. about 10 Giga tonnes per year. It is about five times larger than those targeted by the first commitment period 2008-2012 of the Kyoto Protocol.

Some of the key findings on the ozone layer during 2010 may be highlighted as:

- Over the past decade, global ozone & ozone in the Arctic and Antarctic regions is no longer decreasing but is not yet increasing.
- As a result of the phase-out of ozone depleting substances under the Montreal Protocol, the ozone layer outside the Polar regions is projected to recover to its pre-1980 levels some time before the middle of this century. The recovery might be speeded up by greenhouse gas-induced cooling of the upper stratosphere.
- In contrast, the springtime ozone hole over the Antarctic is expected to recover much later.
- The impact of the Antarctic ozone hole on surface climate is becoming evident, leading to important changes in surface temperature and wind patterns.
- It is reaffirmed that at mid-latitudes, surface UV radiation has been about constant over the last decade.
- In Antarctica, large UV levels continue to be seen when the springtime ozone hole is large.

Key findings on ozone depleting substances and substitutes:

Many ozone depleting chemicals, such as CFCs (chlorofluorocarbons) have been phased out. Demand for replacement substances called HCFCs (hydrochlorofluorocarbons) and HFCs (hydrofluorocarbons) has increased.

Total emissions of HCFCs are projected to begin to decline in the coming decade due to measures agreed under the Montreal Protocol in 2007. But they are currently increasing faster than four years ago.

"The key findings highlighted at Scientific Assessment of Ozone Depletion Report 2010 represent a further potential area for action within the overall climate change challenge. An international group of modellers working with UNEP recently concluded that current commitments and pledges linked with the Copenhagen Accord are unlikely to keep a global temperature rise to under 2°C by 2050. The gap between scientific reality and ambition is estimated to average around 4.7 Gigatonnes of CO<sub>2</sub> equivalent per year, a gap that needs to be urgently bridged over the next decade or so if the 2°C target is to be met." – by Achim Steiner, UN Under-Secretary General and UNEP Executive Director.

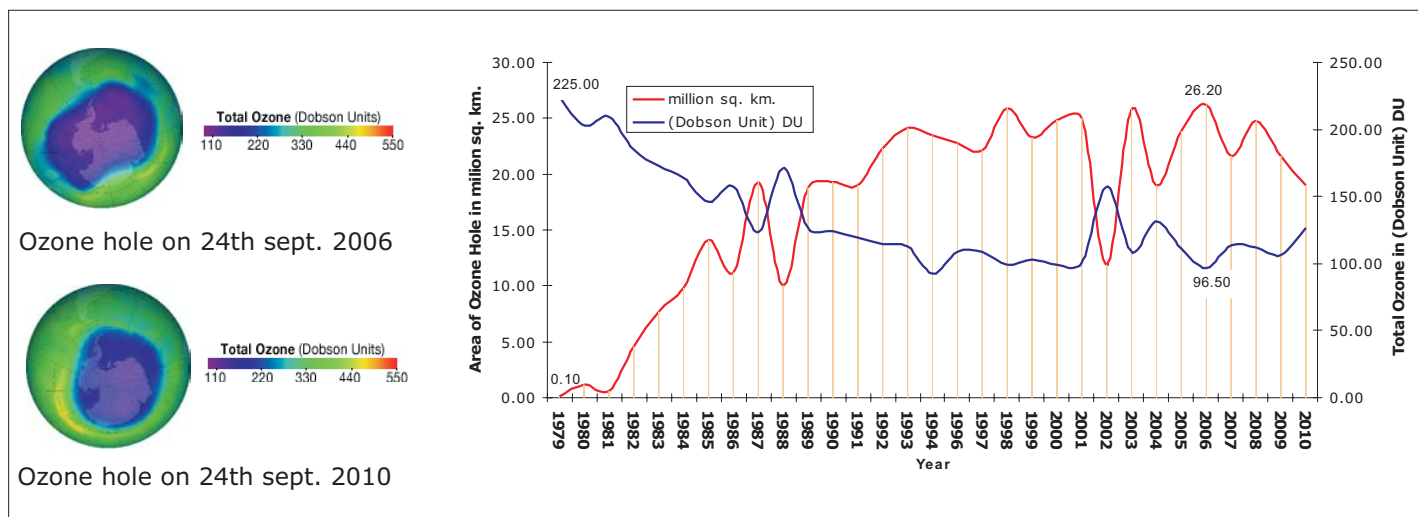


FIG. : Area of Ozone Hole and total quantum of Ozone at Ozone Layer (as on 21 Sept 2010)

## ENVIRONMENT EVENTS

### State joins the observation International Day for the Preservation of the Ozone Layer – 16 September 2010'

Since 1995, on the 16th of September of each year the International Day for the Preservation of the Ozone Layer is celebrated. This year's theme is "Ozone layer protection: governance and compliance at their best". In Manipur state, the Environment & Ecology Office observed the day by organizing a mass rally of more than 1000 students in & around Imphal City of which was followed by mass tree plantation at Kangla. The rally was flagged off by Dr. J. Suresh Babu, Commissioner (Forests & Environment), Govt. of Manipur.



Dr. J. Suresh Babu on the International Day for the Preservation of the Ozone Layer, 16 Sept.2010

In one of the function organized by Manipur Pollution Control Board at Sir Johnston Higher Secondary School, Imphal, its Chairman ,

M.L.A., Shri E. Dwijamani called upon the people to act in the local level to save environment from further degradation asserting that even though the world shouts for

protection of the environment, without acting in the local level, it will not be possible to achieve the ends.

### Clean Up the World weekend, 17-19 September 2010



**"Clean Up the World encapsulates one fundamental idea: how to mobilize people around the world to take on the practical challenge of environmental sustainability. It sounds a very ambitious objective, but it is in our cities, our gardens, our public parks and on the beaches that each one of us can begin to make a difference."**

**Achim Steiner, UNEP Executive Director**

**UNEP** and **CLEAN UP THE WORLD** have worked together since the campaign's inception and are continually strengthening the partnership. This year also celebrating its 18<sup>th</sup> year of **CLEAN UP THE WORLD** with an estimated 35 million volunteers from more than 120 countries. Theme of this year 2010 is **"Communities Caring for Nature"** which reflects the World Environment Day 2010 slogan: **"Many Species. One Planet. One Future"**.

### Clean Up the World weekend, 17-19 September 2010

A Technical Capacity Building Workshop on Environment Statistics was organized jointly with Ministry of Environment & Forests, Govt. of India & Ministry of Statistics & Programme Implementation, Govt. of India during 22-23 September 2010 at

WWF – India, New Delhi in accordance with the recommendations of 16<sup>th</sup> Conference of Central and State Statistical Organization (COCSSO) held in Shimla. The participants were from selected 11 (eleven) State ENVIS Centres of Andhra

Pradesh, Himachal Pradesh, Jharkhand, Kerala, Madhya Pradesh, Maharashtra, Manipur, Orissa, Punjab, Sikkim & Tamil Nadu, State Department of Economics & Statistics, ISS Officers from Central Ministries, etc.



## ENVIRONMENT NEWS

### Flood claims deer

**Imphal, July 03 2010:** On account of flooding of Lamphelpat area for the last many days, a barking deer kept at Iroisemba Zoological Garden has died. Even today, major portions of the zoo are still under deluge. The barking deer died due to continuous flooding of their enclosure since June 9. - **The Sangai Express**

### 'Sangai facing an uncertain future'

**Imphal, August 06 2010:** With the phumdi of Keibul Lamjao National Park, the only natural home to endangered Sangai species of deer, becoming thinner year after year and grazing ground shrinking, the rare animal species is facing a very uncertain future, observed scientist SA Hussain of the Wild Life Institute of India. - **The Sangai Express**

### Bio-resources seminar held at Ukhrul

**Ukhrul, August 30 2010:** A day-long State level seminar on 'Conservation of Bio-resources The need of the hour' with special reference to Ukhrul was held at Pettigrew college here today. The programme was organized by Pettigrew College in collaboration with BEE-NET Manipur under the sponsorship of UGC. - **The Sangai Express**

### Call for saving environment marks 'World Ozone Day' observance in state

**Imphal, September 16, 2010:** The World Ozone Day was observed in the state like in other parts of the globe today with a state level function organised by Manipur Pollution Control Board at Johnston Higher Secondary School, Imphal. The United Nations' (UN) International Day for the Preservation of the Ozone Layer is celebrated on this day (September 16) every year. -**Hueiyen News Service**

### Ozone layer day observed

**Imphal, September 17 2010:** Displaying banners like "Save Earth, Plant Trees" the International Day for the Preservation of the Ozone Layer under the theme "Ozone layer protection: Governance and compliance at their best" was observed today at Imphal jointly organized by the DESAM and Department of Ecology Wing, Government of Manipur by organizing a mass silent rally.

-**Imphal Free Press**

## INVITATION FOR ARTICLE / RESEARCH PAPER

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Research papers / articles related to environmental issues of the local context are invited for free publication in the ENVIS Newsletter. Same will be uploaded in the ENVIS website with due courtesy to the author.

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- full paper with abstract notes;
- 650 to 700 words of English language;
- high resolution pictures (3-4 nos.) of the topic;

Note : Publication of the research paper / article will be decided by the editorial board of the Newsletter.

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