

ble of providing near-natural conditions, new techniques such as SACE (screen-aided CO<sub>2</sub> enrichment) and FACE (free air CO<sub>2</sub> enrichment) are widely used.

The developed nations have carried out several studies on global climate change under various programmes such as the United Nations Environment Programme and others are being run on regional, state as well as national level. Developing countries like India need to focus on these situations. Some programmes are being carried out to study climate response in crop plants, but no study

stresses on the alpine plants, most of which are medicinally important. Our main emphasis should be to run programmes for providing such new facilities for researchers and scientists to work on climate change studies in the alpine region of India.

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## Menace of Japanese encephalitis in rural areas of eastern Uttar Pradesh

Japanese encephalitis is an infectious disease transmitted to human beings through mosquito bite. Although occurrence of this disease has been reported from several states of India like Bihar, Andhra Pradesh and Orissa, in recent days it has emerged as a serious health problem in rural areas of eastern Uttar Pradesh (UP). The scourge of the disease is most severe in Gorakhpur District. The disease is now gradually ramifying itself to other parts of the state. This was recently evident by the death of more than four dozen of children infected with the disease in Sarahanpur District of western UP.

According to State Government sources, Japanese encephalitis has claimed more than 2700 lives since 2002 in UP. Medical survey in the state reveals that of the total diseased persons, children represent 80%. Thus compared to adults, children are more susceptible to the disease. Children surviving the disease often develop complex problems relating to the brain.

Waterlogging and pig farming are the two most important predisposing factors favouring the development and spread of the disease. Japanese encephalitis is spread by *Culex* species of mosquito, which generally breeds in stagnant water-bodies like ponds, pools and in waterlogged paddy fields. Mosquitoes pick the virus from the pigs (which are supposed to be the major reservoir of the virus) and transfer it to humans.

Japanese encephalitis is mainly a brain fever; hence vernacularly the disease is known by the name 'mastishka jwar' or 'dimagi bukhar'. Mild infections occur without apparent symptoms other than fever, with headache. However, more severe infection is marked by high fever, headache, stiffness of neck, coma, tremor, occasional convulsions and spastic paralysis.

Japanese encephalitis is detected through cerebrospinal fluid test, which comprises of antibodies against the virus in the infected person.

The disease has no specific treatment. Patients are treated on the basis of various symptoms. However, diagnosis of the disease in early stage followed by immediate treatment can save the patient's life.

Persistence of Japanese encephalitis in rural areas of eastern UP is a matter of serious concern. Before it could become an epidemic in the region, besides posing threat of spread to other parts of UP, it is need of the hour to control and eradicate the disease.

As a precautionary measure, nets and repellents should be used regularly to avoid mosquito bite. Since vaccine is available against the disease, 100% vaccination should be ensured to control the disease. Water should not be allowed to stagnate in the surroundings. Temporary ponds and pools created during the rainy season should be destroyed. Permanent ponds should be treated with insecticide

from time to time to kill the mosquito larvae. Besides, *Gambusia affinis*, a mosquito larvae-feeding fish should be allowed to flourish in the wetlands. Similarly, fungi like *Leptolegina caudata* and *Aphanomyces lavis* parasitizing the mosquito larvae should be used as biological control agents to curb the mosquito population. The aquatic plant *Pistia*, which favours the breeding of *Culex* mosquitoes in water bodies should be destroyed. Waterlogged paddy fields in rural area serve as the breeding ground for mosquitoes. Therefore, less water-requiring paddy varieties should be brought under cultivation, so that waterlogging could be avoided. Siltation of canals often leads to the problem of waterlogging owing to overflowing of the canals. Hence desiltation of canals is essential after regular intervals to avoid waterlogging.

Since pigs are the major reservoirs of the virus, pig farms should be shifted outside human settlement areas. Unhygienic conditions also favour development of the disease, hence all attempts should be made to maintain neat and clean environment. Thus the disease can be controlled and eradicated by pursuing the policy of 'prevention is better than cure'.

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