ENVIRONEWS

INTERNATIONAL SOCIETY OF ENVIRONMENTAL BOTANISTS

Newsletter

LUCKNOW (INDIA) VOL 11 No 3 JULY, 2005

IN THIS ISSUE

Letters 02

News Flash 04

Sacred Groves of North-East India and their Floristic Richness and Significance in Biodiversity Conservation by R.S. Tripathi **(India)** 04

Air Pollution may cause Lifelong Lung Deficits by Per Elvingson **(Sweden)** 05

Plastics Waste as a Resource for Fuel 06

News and Views 07

Conferences 11

Books 12

MUNICIPAL SOLID WASTE GENERATION IN METRO CITIES OF INDIA

City	Manicipal Solid Waste (tonnes/day)	Per Capita Waste (kg/day)
Ahmedabad	1,683	0.585
Bangalore	2,000	0.484
Bhopal	546	0.514
Chennai	3,124	0.657
Coimbatore	350	0.429
Delhi	4,000	0.475
Hyderabad	1,566	0.382
Indore	350	0.321
Jaipur	580	0.398
Kanpur	1,200	0.640
Kochi	347	0.518
Kolkata	3,692	0.383
Lucknow	1,010	0.623
Ludhiana	400	0.384
Madurai	370	0.392
Mumbai	5,355	0.436
Nagpur	443	0.273
Patna	330	0.360
Pune	700	0.312
Surat	900	0.600
Vadodara	400	0.389
Varanasi	412	0.400
Visakhapatnam	300	0.400

Source**: Management of Municipal Solid Waste, Central Pollution Control Board, New Delhi (Source: Eco-Echoes, Mumbai), **India.

- Informative news, views and popular articles/write-ups on current environmental researches/issues are invited for publication in ENVIRONEWS.
- Environews is published quarterly on the first of January/April/July/October; and is supplied free to all members of ISEB.
- Environews is also supplied in exchange for scientific literature published by reputed organisations.
- All correspondence should be addressed to : **The Secretary, International Society of Environmental Botanists,** National Botanical Research Institute, Lucknow-226 001 (India).
- **E-mail** : isebnbrilko@satyam.net.in • **Website** : http://www.geocities.com/isebindia/index.html

LETTERS

The Tropical Research & Conservation Centre is an NGO, based in Nigeria, which focuses on Environment research, Conservation of natural resources and rural livelihood. We are setting up an Environmental Library for students, researchers, health officers, foresters, aquatic environmentalists, agricultural scientists and the general public. We are collecting publications, workshop and seminar papers and journals, CD ROMS etc. pertaining to above-mentioned areas. I will request to please send to us such publications preferably those in hard copies as access to internet is quite expensive here. Thank you for contributing towards research in Africa.

Ikponke Nkanta
Project Manager TRRC Centre, Department of Zoology
University of Uyo Akwa, Ibom State, **NIGERIA**
<ikponkenkanta@yahoo.com>

I feel pleasure in informing you that we have put ICPEP-3 announcement, on FASP (Forum Actualites Sites Pollues) Website (www.fasp.ubo). This site is working under the aegis of French Environment Ministry Web gate way about contaminated soil hosted by BRGM (www.brgm.fr). Your website has also been linked to FASP under the heading "Conferences".

J.F. Brunet
Service Environnement & Procédés
Gestion et maintenance du site Internet FASP
3 avenue Claude GUILLEMIN - BP 6009
45060 ORLEANS Cedex 2, **FRANCE**
<jf.brunet@brgm.fr>

International Society of Food, Agriculture & Environment (ISFAE) wants to promote your upcoming meeting on Plants & Environmental Pollution by all possible means (including advertisement on our website) to attract participants. We are also willing to publish some selected abstracts in Journal of Food, Agriculture & Environment. We offer to supply you about 50 reprints, for distribution among the authors.

In return we will request you to designate ISFAE as co-sponsors of your Conference and display its logo in all your brochures, publications etc.

P. Halttu
ISFAE-Executive Secretariat
Meri-Rastilantie 3 C, FIN-00980 Helsinki, **FINLAND**
<isfae@isfae.org>

You have worked incredibly hard and with enormous persistence to try to obtain funding for ICPEP-3 from organizations from which it is very difficult to secure funds. As you are aware, this type of activity is not high in their list of priorities. It may be of little consolation, but eminent scientists from developed nations have no more success in securing funds from these organizations for international conferences. They will offer kind words, in principle support etc. but no cash. It is very frustrating.

Frank Murray
Associate Professor & Dean of Graduate Studies
Murdoch University, Murdoch, WA 6150, **AUSTRALIA**
f.murray@murdoch.edu.au

I am quite disappointed and concerned about the sponsorship of ICPEP-3. I regret that I have been away for the last 7 weeks. I will now do some searching for support, although any support will be financially minimal. Our University has announced a 40% cut in research and teaching of agriculture and natural resources. Most of my colleagues are fending for themselves. I too am watching the ship sink, but hopefully with a life vest. I do not want to sound pessimistic, but the reality has to be faced, no doubt with a fight. I plan to give one.

As the Editor of the book series for Elsevier, I can convince them to publish the manuscripts within each theme. I simply cannot justify patching a bunch of papers together.

Therefore, the Organizing Committee must get a commitment a priori as to who the contributing authors will be of Chapter type manuscripts. There can always be short, but good offered papers in a separate but coherent section.

Prof. Sagar V. Krupa
University of Minnesota,
St. Paul, MN 55108, **U.S.A.**
<krupa001@umn.edu>

I would like to attend Third International Conference on Plants and Environmental Pollution (ICPEP-3), which will be held in National Botanical Research Institute Lucknow in November - December 2005. Would you kindly send me the latest circular by e-mail.

Prof. Jing-fen Jia
School of Life Sciences,
North West University, Xian 710069, **CHINA**
<jiajf38@nwu.edu.cn>

NEWS FLASH

MASHELKAR ELECTED AS ASSOCIATE OF USNAS

Director General of India's Council of Scientific & Industrial Research (CSIR) Dr. R.A. Mashelkar had been elected foreign Associate of U.S. National Academy of Sciences (USNAS) at its annual general meeting on May 3, in recognition of his distinguished and continuing achievements and original research in polymer science and engineering.

Election of this Academy is considered as one of the highest honours that can be accorded to any scientist or engineer.

PROF. R.P. SINGH HONOURED

Lucknow University Vice-Chancellor Prof. Ram Prakash Singh has been selected for the year's Flory Award instituted by the World Forum on Advanced Material. Prof. Singh has been selected for the award for his contribution in the field of polymer and material science.

The World Forum on Advanced Material is the highest body of material and polymer scientists drawn from 55 countries.

Prof. Singh has made significant contributions in the field of polymer science and engineering. His works are highly appreciated, specially those relating to application of polymer in agriculture.

BRAIN STORMING ON GANGA POLLUTION

One day National seminar on "Ganga Pollution: Aspects and Prospects" was organized at NBRI auditorium on 12 May, 2005. The seminar was inaugurated by Mrs. Rama Rauta, President National Women's Organization, Pune, a Gandhian activist and Convener of the Save Ganga Movement. Dr. P. Pushpangdan, Director, NBRI, Lucknow in his presidential address stated that the river Ganga is the lifeline of our country, the catchment area of the river is weakened due to denudation of the forest. There is therefore, an urgent need to undertake tree plantation to restock the forest and also on the river banks to prevent soil erosion and siltation. Ganga is, however facing serious problem take siltation, reduction in quantities of water and above all unabated pollution load. Dr. Y. K. Gupta, the then Director, ITRC, Lucknow stressed the need for awareness campaign to prevent further pollution of Ganga water. Dr. U. N. Rai, convener of the seminar while giving the background and objective of the seminar said that the remedy of the Ganga pollution lies in forestation with biodiverse group of plants that will bring rain, retain water and control pollution. Dr. R. D. Tripathi, scientist NBRI, Lucknow spoke about contribution of NBRI to prevent Ganga water pollution. The inaugural function ended with vote of thanks by Dr. S. K. S. Rathore, Scientist, Information Division, NBRI, Lucknow. A group of thirty experts from different academia and non-governmental organizations under the chairmanship of Dr. S. N. Singh, scientist participated in panel discussion to discuss strategies and action plan for undertaking plantation program along stretch of Ganga and development of constructed wetlands for treatment of sewage sludge before disposing into the river in Uttaranchal region.

After the seminar a team of NBRI scientists proceeded on tour to Gangotri under the leadership of Dr. P. Pushpangdan, Director, NBRI, Lucknow. On the occasion of Ganga Saptami, 15 May, 2005, launched the tree plantation program on the banks of the river Ganga. Director, NBRI planted a tree near the Har Ki Paudi at Haridwar as a symbolic of our plantation project under the chanting of the vedic mantras in the presence of religious leaders and social activist Padamshri Sunder Lal Bahuguna. The team proceeded towards the Gangotri and collected water, sediments, algae and plant samples from different locations along stretch of Ganga from Gangotri to Haridwar. A list of local plants has been prepared to select out potential phytoremediator plants for plantation program. Pollution due to anthropogenic activities were evident even at source as also indicated by presence of certain indicator algal species, however, to arrive at certain conclusion a complete analysis of the data is required.

NEW LIFE MEMBER

Dr. Altaf Ahmad, Lecturer in Botany, Jamia Hamdard (Hamdard University, New Delhi, India), has joined International Society of Environmental Botanists as a Life Member. Dr. Ahmad is an Associate Fellow of National Academy and Agricultural Sciences, New Delhi. He is a recipient of INSA Young Scientist Medal-2003 and Prof. LSS Kumar Memorial Award 2003 of Indian National Science Academy.

Recently, Dr. Ahmad has won the Young Scientist Award 2005 of Council of Science & Technology, U.P. for his contributions in physiological, biochemical and molecular aspects of mineral nutrition to rapeseed-mustard.

SACRED GROVES OF NORTH-EAST INDIA AND THEIR FLORISTIC RICHNESS AND SIGNIFICANCE IN BIODIVERSITY CONSERVATION

R.S. TRIPATHI*

Declaring a patch of forest near the villages as sacred and protecting it on the grounds of religious and cultural beliefs is an age-old practice with the tribal communities in the north-eastern hill region of India. There are a large number of sacred groves in the states of Meghalaya, Manipur and Karbi-Anglong area of Assam. These sacred groves in existence in the region since time immemorial and are considered to be the relic of the original forest vegetation of the region. These are among the few least disturbed forest patches in the region serving as the original treasure house of biodiversity. Over the past one decade or so, a considerable amount of interest has been generated in the studies of sacred groves among the ecologists, taxonomists, foresters, environmentalists and anthropologists. We have documented as many as 79 sacred groves in Meghalaya alone. These sacred groves (called as 'law Kyntang', 'Law Niam' and 'Law Lyngdoh' in Khasi hills, 'Khloo Blai' in Jaintia hills, and 'Asheng Khosi' in Garo hills) are owned by individuals, clans or communities, and are under direct control of the clan councils or local village Dorbars/Syiemships/Dolloiships/ Nokmaships. They show a wide variation in their size and forest canopy cover. The information collected on the status of 56 sacred groves of Meghalaya showed that 12.5% of them are undisturbed (100% canopy cover), 25% are dense (> 40% canopy cover), 20% are sparse (10-40% canopy cover), while 42.5% of the groves are highly degraded and have even less than 10% canopy cover. The fact that 57.5% of the sacred groves are still in good condition, and some of them are quite intact despite various kinds of anthropogenic disturbances such as shifting cultivation, unregulated tree felling, forest fires and deforestation prevalent in the area, shows that the religious beliefs and taboos have certainly contributed to the protection of the sacred groves. Some of the undisturbed/least disturbed sacred groves of Meghalaya (Law Lyngdoh at Mawphlang, Law Rynkiew Swer at Swer, and Mawiong sacred grove at Mawsmai in East Khasi hills; Law Adong/Law Lyngdoh Mawlong at Mairang in West Khasi hills, and Raliang and Ialong sacred groves in Jaintia hills districts) have been studied in detail by the author and his collaborators at the North-Eastern Hill University, Shillong.

The abovementioned sacred groves are extremely rich in floral and faunal elements. The species content in these sacred groves is very high. The information on floristic richness of the sacred groves of Meghalaya collected from various primary and secondary sources revealed that at least 514 species representing 340 genera and 131families are present in these sacred forests. The sacred groves contain several valuable medicinal and other economically important plants. Some of the endangered taxa are to be found only in the sacred groves. Apart from trees and shrubs, a wide variety of lianas, orchids, ferns, bryophytes and microbes abound in these sacred forests. The sacred grove biodiversity compares favourably with the biodiversity in the core area of some of the biosphere reserves in this region (e.g. Nokrek Biosphere Reserve), which are being managed by the state forest departments. This bears testimony to the efficacy of the traditional forest management systems practiced by the local communities.

Besides being the repository of biodiversity, the sacred forests provide a myriad of valuable ecosystem services, and serve as ideal study sites to address many ecological issues related to forest ecosystem dynamics and management. Extensive researches have been carried out by the Ecologists at NEHU, Shillong on various aspects of sacred groves. They have compared the plant community attributes and tree population structure of Mawphlang sacred grove and disturbed forest stands. Most of the primary (late successional) tree species have much greater density and IVI values in the sacred grove as compared to the disturbed subtropical humid forest stands around Shillong. The populations of several tree species in the sacred grove at Mawphlang comprise relatively higher proportion of older trees as compared to their saplings and seedlings, which is attributable to the regeneration of these trees due to increased shade caused by the dense canopy of the sacred grove. The regeneration in the well protected sacred groves occurs mostly in the gaps created due to natural tree fall. A detailed analysis of the relationship between tre regeneration and gap size and microenvironmental variability has been done by the author and his associates. The studies on the effects of microsites on germination of *Quercus griffithii*, *Lithocarpus dealbatus* and *Schima khasiana* and microsite characteristics-oak seedling fitness relationship indicate that the primary species which are shade-tolerant, perform better in the undisturbed sacred groves than in the disturbed forests, which tend to be favourable for the secondary successional species.

It seems reasonable to assume that proper regeneration, growth and perpetuation of such important trees as oaks in the forests would be possible

only when the cultural disturbances are reduced to the minimal level and adequate protection is afforded to the sacred groves. The big trees of these species present in the sacred groves can serve as a perennial source of propagules, which may be dispersed to the newer habitats to initiate successful invasion. The religious beliefs and rituals central to the sacred grove preservation are being eroded fast, and therefore, these biodiversity-rich forests cannot be protected only through religious beliefs. External intervention has become essential for the protection of the sacred groves. The suitable packages of conservational and eco-restoration strategies need to be evolved for the protection of sacred groves with the full involvement and participation of the local communities. It may be mentioned that the protection of the sacred groves in Meghalaya, could be attributed not only to the religious beliefs and taboos, but also to the wisdom of the people residing in the adjoining areas. For instance, the villagers are fully aware of the importance of the sacred groves as perennial source of clean water to them. They also know that sacred groves help in reducing loss of top fertile soil due to erosion caused by heavy rain, and some of the medicinal plants they can get only from the sacred groves.

If the religious beliefs associated with the sacred groves, and traditional wisdom contributing to forest protection could be suitably integrated with the modern scientific forest management practices, these sacred groves could become a very useful model for biodiversity conservation in the region. Evidently, there is a strong need to perpetuate and promote the concept of sacred groves, and to evolve a mechanism whereby the forest departments could provide technical inputs to improve the canopy cover and regeneration of trees in the degraded sacred groves of the region.

** Formerly, Professor of Botany, North-Eastern Hill University, Shillong-793022, India.*

INSA Senior Scientist, National Botanical Research Institute (Eco-education Division), Rana Pratap Marg, Lucknow-226001, **India**

AIR POLLUTION MAY CAUSE LIFELONG LUNG DEFICITS

PER ELVINGSON

By the age of 18, the lungs of many children who grow up in the polluted areas are underdeveloped and are unlikely ever to recover, according to the results of the Southern California Children's Health Study, the longest investigation ever into air pollution and children's health.

The study provides the most definitive evidence yet that routine exposure to dirty air during childhood actually harms lung development, leading to a permanently reduced ability to breathe. Underpowered lungs are known to cause a wide range of health problems.

Between 1993 and 2001, scientists have tracked levels of major pollutants in twelve Southern California communities while monitoring the pulmonary health of 1,759 children as they progressed from 4th grade to 12th grade (10 to 18 years old).

The twelve communities included some of the most polluted areas in the greater Los Angeles basin, as well as several low-pollution sites outside the area.

Children breathing dirty air were nearly five times more likely than children in less polluted communities to grow up with weak lungs, they found. In the highest pollution areas 7.9 per cent of the 18-year-olds had lung capacities that were less than 80% of what they should have been. Among teenagers subjected to the least-polluted air, only 1.6 per cent had underperforming lungs. This is some of the most convincing evidence that air pollution has chronic effects.

The pollutants for which a correlation was found between concentration and deficits in lung development were nitrogen dioxide, acid vapour, particulate matter with a diameter of less than 2.5 microns and elemental carbon. The strongest correlation was observed with small particulates. These are pollutants that all derive from vehicle emissions and the combustion of fossil fuels.

The definition of clinically low lung function is when a person has less than 80 per cent of the lung function expected for his or her age. This is viewed as a significant deficit with both short and long-term implications.

If a child or young adult with low lung function were to have a cold, they might have more severe lung symptoms, or wheezing. They may have a longer disease course, while a

child with better lung function may weather it much better.

Potential long-term effects are more alarming. Low lung function has been shown to be second only to smoking as a risk factor for all-cause mortality.

Lung function increases steadily as children grow, peaking at about age 18 in women and sometime in the early twenties in men. Lung function stays steady for a short time and then declines by 1 per cent a year throughout adulthood. As lung function decreases to low levels in later adulthood, the risk of respiratory diseases and heart attacks increases.

Researchers are unsure how air pollution may retard lung development. Chronic inflamma-tion may play a role, with air pollutants irritating small air ways on a daily basis. Scientists also suspect that pollutants might inhibit the growth of alveoli, the tiny air sacs within the lungs where the exchange of oxygen and carbon dioxide takes place.

The research team will continue to follow the study participants into their early twenties, when their lungs will mature and stop developing entirely. The team aims to find out if the participants begin to experience respiratory symptoms and if those who moved away from a polluted environment show benefits.

The Swedish NGO secretariat on Acid Rain, Box 7005, 402 31 Goteborg, ***Sweden***

(Source: ***Acid News, Sweden****)*

PLASTICS WASTE AS A RESOURCE FOR FUEL

Plastics have become an integral part and parcel of our lives due to its economic value, easy availability, easy processability, light-weight, durability and energy efficiency, besides other benefits.

Since plastics are re-usable and recyclable, there should not have been any problem of disposal of the plastics waste, however due to our poor littering habits and inadequate waste management system/infrastructure, plastics waste management, disposal continues to be a major problem for the civic authorities, especially in the urban areas.

Though various steps have already been either taken or initiated by the Government and the legal/civic authorities to reduce the problem of this waste management, an innovative invention by Prof. Alka Umesh Zadgaonkar of the Department of Applied Chemistry, G.H. Raisoni College of Engineering, Nagpur, Maharashtra, has created a hope and scope to tackle this problem more easily and more environmentally-friendly manner.

She has invented a catalyst system, which converts polymeric materials into liquid, solid and gaseous fuels.

The Process

Under controlled reaction conditions, plastics materials undergo random de-polymerization and is converted into three products:

a) Solid Fuel – Coke

b) Liquid Fuel – Combination of Gasoline, Kerosene, Diesel and Lube Oil

c) Gaseous Fuel – LPG range gas

The process consists of two steps:

i) Random de-polymerization

· Loading of waste plastics into the reactor along with the Catalyst system.

· Random de-polymerization of the waste plastics.

ii) Fractional Distillation

· Separation of various liquid fuels by virtue of the difference in their boiling points.

One important factor of the quality of the liquid fuel is that the sulphur content is less than 0.002 ppm – which is much lower than the level found in regular fuel.

Principles Involved

All plastics are polymers mostly containing carbon and hydrogen and few other elements like chlorine, nitrogen, etc. Polymers are made up of small molecules, called monomers, which combine together and form large molecules, called polymers.

When this long chain of polymers break at certain points, or when lower molecular weight fractions are formed, this is termed as degradation of polymers. This is reverse of polymerization or de-polymerization.

If such breaking of long polymeric chain or scission of bonds occur randomly, it is called 'Random de-polymerization'. Here the polymer degrades to lower molecular fragments.

In the process of conversion of waste plastics into fuels, random de-polymerization is carried out in a specially designed reactor in the absence of oxygen and in the presence of coal and certain catalytic additives. The maximum reaction temperature is 350°C. There is total conversion of waste plastics into value-added fuel products.

Unique features of the process and product obtained are:

· All types of Plastics Waste including CD's and Floppies having metal inserts, laminated plastics – can be used in the process without any cleaning operation. Inputs should be dry.

· Bio-medical plastics waste can be used.

· About 1 litre of Fuel is produced from 1 kg of Plastics Waste. Bye-products are Coke and LPG

Gaseous Fuel.

- Any possible dioxin formation is ruled out during the reaction involving PPVC waste, due to the fact that the reaction is carried out in absence of oxygen, a prime requirement for dioxin formation.
- This is a unique process in which 100% waste is converted into 100% value-added products.
- The process does not create any pollution.

Though the fuel so produced from the plastics waste could be used for running a four-stroke/100 cc motorcycle at a higher mileage rate, the inventor agrees that separation of petrol from the liquid fuel could be a complex generation. Nevertheless the product is good enough for use as an alternative clean fuel in boilers and other heating systems.

It is, however, not the first time that fuel has been produced out of plastics waste. A Japanese company, M/s. Ozmotec, is already manufacturing fuel out of plastics waste at an industrial plant in Japan employing the Pyrolysis process. However, Prof. Zadgaonkar's process is a continuous one and hence is cheaper, whereas the Japanese technology is a batch process and is comparatively costlier.

A live demonstration of the production of Liquid Fuel was made in the presence of ICPE led team in the laboratory. Three kgs of plastics scrap was used to produce about 2 litres of Liquid Fuel in about 3 hrs. The reaction was terminated after the trial demo. The fuel obtained was used in smooth running of a motorcycle, which was experienced by the visiting members. However, the inventor does not wish to claim the product as a substitute for Petrol or Diesel at this stage. The present use would be as a fuel for running boilers and other heating purposes.

A report from the Team comprising Mr. T.K. Bandopadhyay of ICPE and Dr. Shashikant Sharma of IPCL's R&D Department, who were deputed by ICPE management to visit Nagpur. Text of the report is based on the information provided by the inventor

(Source: **Eco Echoes, Mumbai)**

NEWS AND VIEWS

A MEASURE OF GLOBAL WARMING

The world is getting warmer – and scientists in the United States of America now know precisely how much warmer. They calculated the radiation from the sun, the heat reflected back into space, and the rising temperature of the seas and say the extra warmth is equivalent to a one watt light bulb shining constantly over an area of one square metre everywhere on the planet.

That would raise average temperatures by 0.6° Celsius before the end of the century, they reported in *Science*. Warming at that level, maintained over a period of 10,000 years, would melt enough ice to raise sea levels by at least a kilometer.

"This energy imbalance is the smoking gun which shows that our estimates of the human-made and natural climate forcing agents ate about right, and they are driving the Earth to a warmer climate.

Most of the world-with the exception of only two nations, the US and Australia-has signed up to the Kyoto protocol the provisions of which limit greenhouse gas emissions and further global warming.

The US government has repeatedly been arguing that scientific opinion about global warming is divided. With this new research, funded by the US government scientists have once again told the American administration that they believe global warming is real, and inexorable.

Computer models of future levels of global warming worldwide suggest that planetary temperatures could rise by as much as 5.8° Celsius in the next century. This could lead to sea levels rising by as much as a metre. Since 1993, the world's oceans have been steadily rising at the rate of 3.2 centimetres per decade. This is twice the sea level rise of the last 100 years. The warmer the oceans, the faster the planet's ice sheets will melt.

"We need to monitor the ice sheets and sea level precisely to be sure that the system is not running out of our control," Dr. Hansen said.

(Guardian)

Hindustan Times, India

ADDITIONS TO "DIRTY DOZEN" CHEMICALS

Countries at UN meeting recently held in Uruguay agreed to the 'dirty dozen' test of banned pesticides and industrial chemicals popularly known as persistent organic pollutants (POPs). The meeting decided to reduce the legal exemption on the world's most hazardous substances blamed for deaths, cancer or birth defects in humans and animals. But exemptions for some toxins such as DDT were maintained to allow their use to destroy deadly insects, despite their harmful effects.

POPs build up in fatty tissues and traces can be found in every person in the world. Those chemicals which are being phased out include two flame retardants called pent abrominated diphenyl ether (pentab de) and hexabroma biphenyl (Hexa-bb). The other two culprits are the insecticide lindome and pesticide chlordeconc.

The conference upheld exemptions for some toxins - most importantly the antimalarial DDT and termite killer mirex - in some countries because the death and damage caused by their disuse was considered to be worse that the harm they cause.

GREEN TEA FIGHTS CANCER

A joint research team from the University of Murcia in Spain and the John Innes Centre in England has found that green tea is loaded with a compound

epigallocatechingallate (EGCG), that has demonstrable cancer-fighting properties. The conclusions of the study lend weight to previous surveys that found lower cancer rates among populations of heavy green tea drinkers. This may be because EGCG blocks an enzyme that is a catalyst to cancer growth; in fact, it has properties similar to those of methotrexate, a drug that has been used for decades in the treatment of cancer of breast, head, neck and lung.

Scientists hope their findings will lead to ECCG-based drugs that have fewer side effects than methorexate, which can cause vomiting and hair loss, among other ills. Excessive drinking of green tea by pregnant women has been linked to birth defects.

Hanna Kite

TIMES Magazine

CARCINOGENIC CARPET

A baby crawling across a carpet can inhale the same amount of carcinogenic materials that it would, if it had smoked three cigarettes a day. This can be changed by vacuuming regularly, using nontoxic cleansers and using special flooring

TIME, U.S.A.

SOLAR COOKERS POPULAR IN RURAL CHINA

In most villages in Western China, commonly used fuels are dung, straw, tree branches, grass roots, leaves and coal. Collecting fuel is difficult and time consuming.

The Canada Fund in China provided solar cookers to more than 1700 households in villages and to monasteries in Tibet, benefiting approximately 10,000 individuals. University students are helping the project by going from village to village, often in remote areas in the mountains, to deliver the cookers and explain how to use them.

Solar cookers have numerous benefits. Less organic material is collected from the environment and burned, resulting in less soil erosion and less air pollution. More girls attend school because their duties as fuel collectors are reduced. And women's health has improved due to less exposure to smoky kitchen and less contact with dung. The Canada Fund in China, a small-project fund administered from the Canadian Embassy in Beijing, is designed to finance local initiatives providing technical, economic and social development assistance to local populations.

Society for Economic Botany Newsletter, U.S.A.

MASTER'S DEGREE IN PLANT BIOLOGY & CONSERVATION - A UNIQUE INTERDISCIPLINARY PROGRAMME

According to a 1997 World Conservation Union report, 34,000 species, or 12.5 per cent, are facing extinction. The U.S. flora is the fourth most endangered in the world; 4669 species, or 29 per cent of the country's plants, are in danger of becoming extinct.

The primary causes of species extinction or endangerment are habitat destruction, commercial exploitation, damage caused by non-native plants and animals introduced into an area and pollution. Direct habitat destruction threatens the most species.

To stem the loss of biodiversity and its harm to eco-systems, threatened and endangered plants must be located and safeguarded, their reproductive biology must be understood, and they must be re-introduced to native habitats that will sustain them into the future. This requires qualified and committed botanists and plant conservationists.

Not enough botanists or plant conservationists are being trained to address the growing national and international threats to biodiversity and impending global mass extinctions.

In response to this critical shortage, North-western University, U.S.A. and Chicago Botanic Garden are joining hands to offer Master of Science degree in Plant Biology and Conservation – a unique interdisciplinary program designed to educate the next generation of plant scientists. For more information on the program visit **http://www.wcas.northwestern.edu/biosci/gradinate/**

DESTRUCTION OF AMAZON FORESTS

The Amazon rainforest is being destroyed at near record levels, according to new figures released by the Brazilian government. The environment ministry said 26,000 sq km of forest were chopped down in the 12 months prior to August 2004. The loss of 26,000 sq km means that almost a fifth of the entire Amazon has now been chopped down. Just under half of the deforestation occurred in Mato Grosso, where trees have been replaced with soya fields. Last year exports of soya, mostly to China and Europe, propelled Brazil to a record trade surplus. Thus, exports are being put ahead of the environment.

The broader fear among environmentalists is that a shrinking Amazon will soon become a net polluter of greenhouse gases like carbon dioxide as its absorbing properties are reduced and more and more felled trees are burned.

BBC News

WIND FARMS

Climate change will have a devastating impact unless urgent action is taken to boost the contribution of renewable energy sources. According to a report by the Sustainable Development Commission (SDC) of U.K. wind power is a critically important part of the overall energy mix and should be harnessed in the most responsible way to ensure that emissions of carbon dioxide are reduced.

The UK has the best and most geographically diverse wind resources in Europe, more than enough to meet current renewable energy targets. In addition, it is only modestly more expensive than conventional energy sources. As fossil fuel prices increase and wind turbines become cheaper to build, wind power may even

become one of the cheapest forms of energy. The report claims that wind farms would take 0.0001% of British land to produce 20% of electricity.

While many people support the idea of wind farms, they do not want them in their local area. People feel they will spoil the landscape and there are concerns that they may kill birds if they are located on bird migratory routes.

BBC News

CASUARINA TREES SAVE VILLAGE FROM TSUNAMI

Two year ago, drought-stricken farmers in a village in Tamil Nadu, named Natuvedapathy planted thousands of saplings of Casuarina trees which saved the lush green village when the killer tsunami struck down thousands of people and homes on December 26. Of the nearly 8000 people who died in the state, only seven were from this village.

The trees are known as good wind barrier but nobody thought that one day it would also act as water barrier and save the village from a disaster like tsunami.

The Casuarina trees which numbered more than 60,000 took the brunt of the tsunami waves as they swept the village. The giant waves inundated dozens of thatched roof houses in the village as they swept inland to a distance of a kilometre from the shore but the Casuarina trees had considerably weakened the waves and reduced the impact. The saplings were planted in a one-km long coastal strip spread over 20 hectares.

The villagers have started a trust since the tsunami struck, to undertake trees plantation along the 1000 km coast of Tamil Nadu.

Reuters

RISING OZONE POLLUTION THREATENS CROP YIELDS

Global food security could be threatened by ozone pollution close to the Earth's surface, according to a study presented at the Royal Society, U.K.

Previously greenhouse studies suggested that higher concentrations of carbon dioxide from urban pollution might increase crop yields. But these studies ignored the role of ozone-increased by traffic fumes. Stephen Long, a U.S. scientist looked at what future pollution levels could become for crop yields in open air studies of 22 varieties of soya bean. The experiments mimicked carbon dioxide and ozone levels predicted for the year 2050. Preliminary results suggest that yields would fall by as much as 10 per cent. John Porter, a Danish ecologist observed that ozone will be a threat to crops, particularly in rapidly industrializing countries like India and China.

Ozone levels are predicted by the Intergovernmental Panel on Climate Change to rise most in the Middle East, in northern parts of South Asia and in China – one of the largest produces of soya beans. By 2050, urban pollution is expected to increase ozone levels near the ground by at least 25 per cent in China.

SOOT REDUCES SUNSHINE OVER CHINA

Chinese scientists have found a significant decrease in daily surface solar radiation and less sunshine per month compared with 1961. It is caused by a rise in aerosols – little particles that include soot, dust and even smaller bits produced by burning fossil fuels such as coal and oil. The scientists measured several components of sunniness, including daily global radiation, annually averaged solar direct radiation and daily diffuse radiation, as well as the annually averaged daily clearness index.

Almost all studies in China showed decreasing trends in the clearness index. These results indicated that the increasing emissions of anthropogenic (human-made) aerosols have affected the magnitude and variability of solar radiation and sunshine duration over much of China.

Reuters

CARBON ABSORPTION IN RUBBER PLANTS

The Rubber Research Institute of India (RRII) has started to assess the carbon absorption capabilities of rubber plants, which can be encashed as per the provisions of the Kyoto Protocol. The RRII is trying to work out how much carbon can be sequestrated by one hectare of rubber plantation as rubber plants are known to have very high carbon assimilation capacity and in the growing phase this is more. Once the carbon sequestration per hectare is quantified and necessary approvals are obtained, rubber plantations can pitch for funding from developed countries under the Kyoto Protocol.

Business Line, New Delhi.

2005 – WARMEST YEAR IN HISTORY?

Cold statistics point to the hard fact that our weather is changing, thereby indicating a long-term climatic change. Snow in sunny U.A.E., torrential rains in arid Saudi Arabia, snow emergencies in the US and a heat wave in Europe are just some of the recent cases of unusual weather. In India, the north has seen an atypical winter, which has alternated alarmingly between unusually warm and extreme cold weather. Global warming is definitely leading to changes in the weather.

Scientists agree that the Earth has warmed dramatically over the last 140 years and is now warmer than it has been in the last 600 years. New records are being broken for floods, droughts and storms. This trend is likely to become more intense in the years to come. Many scientists have proved conclusively that warming over the last 140 years is due to the greenhouse effect, enhanced by human activities.

The warmest year on record was 1998 followed by 2002 and 2003. The 10 warmest years in the 1000 years belonged to the last decade. NASA scientists predict

that a weak El Nino and human made greenhouse gases could make 2005 the warmest year since records started being kept in the late 1800s.

Times of India/ Business Line

DIMINISHING SOLAR ENERGY

We are all seeing rather less of the Sun, according to scientists who have been looking at five decades of sunlight measurements. They have found that the amount of solar energy reaching the Earth's surface has been gradually falling. Paradoxically, the decline in sunlight may mean that global warming is a far greater threat to society than previously thought.

Comparing Israeli sunlight records from the 1950, with current ones, it was found that there was a staggering 22 per cent drop in the sunlight. Sunlight was falling by 10 per cent over the U.S.A., 30 per cent in parts of the former Soviet Union and 16 per cent in parts of the Britain.

Burning coal, oil and wood, whether in cars, power stations or cooking fires, produces not only invisible carbon oxide but also tiny air borne particles of soot, ash, sulphur compounds and other pollutants. This visible air pollution reflects sunlight back into space, preventing it from reaching the surface. But the pollution also changes the optical properties of clouds. Because the particles seed the formation of water droplets, polluted clouds contain a larger number of droplets than unpolluted clouds. This makes them more reflective than they would otherwise be, again reflecting the Sun's rays back into space.

Scientists are also worried that dimming by shielding, the oceans from the full power of the Sun, may be disrupting the pattern of the world's rainfall.

Times of India

TURMERIC FIGHTS CANCER

Turmeric powder, contains a chemical called curcumin, which may help curb the spread of breast cancer, according to a study carried out by researchers from Texas University on mice. Turmeric, which has also been a traditional medicine in India for quite a long time, is now also getting attention from the West. Curcumin, an antioxidant that gives turmeric its yellow colour, is on the National Cancer Society's list of compounds that have shown evidence of cancer prevention.

During the course of study, the researchers divided the mice into four treatment groups – curcumin alone, the breast cancer drug Taxol alone, curcumin and Taxol and no treatment. After studying them for five weeks, they found that cancer had spread to the lungs of mice in all groups, but the curcumin groups fared best.

Curcumin acts against transcription factors, which regulate all the genes needed for tumours to form. When we turn them off, we shut down some genes involved in the growth of cancer cells.

ANI

ALARMING NITRATE LEVELS IN WATER

Over 230 million people in India face the risk of contracting gastric cancer and damage to their central nervous system or cardiovascular systems due to dangerously high levels of nitrate in ground water. Nitrate toxicity also causes the fatal blue baby syndrome in infants.

Excessive use of fertilizers, besides sewage and animal waste has shot up nitrate levels in ground water. Nitrate poisoning is a cause for worry in areas where drinking water supplies are dependent on ground water. Boiling water does not solve problem since nitrate is a chemical, not a form of bacteria.

The admissible nitrate concentration in water is 45 mg per litre, but in several areas this concentration is quite alarming, like 3080 mg per litre in Mankasar, Rajasthan, 1600 mg per litre in Samboli, Delhi and 1490 mg per litre in Geddaluru in Andhra Pradesh.

Satyen Mahapatra
Hindustan Times.

Until man duplicates a blade of grass, nature can laugh at his so-called scientific knowledge.... It's obvious that we don't know one millionth of one percent about anything.

- Thomas Alva Edison (1847-1931)

CONFERENCES

International Conference on Human Centred Sustainable Development Paradigm
August 8 –11, 2005 Chennai, India
Contact: Dr. Ajay Parida
Organizing Secretary
M S Swaminathan Research Foundation
3rd Cross Street, Institutional Area, Chennai-600113, India
E-mail: swami80@mssrf.res.in; Website: www.mssrf.org

National Conference on Management of Land Resources & Land Use Towards Sustainable Development
August 24 - 25, 2005 Jhansi, India
Contact: Dr. Amit Pal
Convenor
Institute of Environment & Development Studies
Bundelkhand Univeristy, Jhansi – 284 128
E-mail: apu13@rediffmail.com
mlrlusd05@rediffmail.com

Environmental Health Risk 2005
Third International Conference on the Impact of Environmental Factors on Health
September14-16, 2005 Bologra, Italy
Contact: www.wessex.ac.uk
E-mail: enquiries@wessex.ac.uk

National Conference on Management of Urban Vegetation
September 23-24, 2005 Mumbai, India
Contact: Dr. Satish A. Bhalerao
Head, Department of Botany & Convener
Wilson College, Mumbai-400007, India.

7th International CO_2 Conference
September 26-30, 2005 Broofield, CO, U.S.A.
Contact: www.cmdl.noaa.gov/info/icdc7

First International Conference on Environmental Exposure and Health
October 5-7, 2005 Atlanta, U.S.A.
Contact: www.wessex.ac.uk
E-mail: enquiries@wessex.ac.uk

Climate Changes – Forest Ecosystems and Landscape
October 18-22, 2005 Sielnica, Slovak Republic
Contact: Matus Sirota <sirota@fris.sk
www.fris.sk

National Symposium on Recent Trends in Environmental Biology & Biotechnological Approach to Conserve Biodiversity
October 22 - 24, 2005 Gulbarga University, India
Contact: Dr. Krishna Gopal
Joint Organizing Secretary
The Academy of Environmental Biology
Industrial Toxicology Research Center, Lucknow – 226 001, India
Email : aeb1@rediffmail.com

1st DIVERSITAS International Conference on Biodiversity.
Integrating Biodiversity Science for Human Well-being
November 9-12, 2005 Oxaca, Mexico
Contact: secretariat@diversitas-international.org

Greenhouse 2005: Action on Climate Control
November13-17, 2005 Melbourne, Australia
Contact: www.greenhouse2005.com

The Fifth International Conference on Remediation of chlorinated and Recalcitrant compounds
May 22 – 25, 2006 Monterey, California (U.S.A.)
Contact: info@confgroupinc.com
www.battelle.org/chlor.com

Eco-Architecture 2006
First International Conference on Harmonization Between Architecture and Nature
June 14 – 16, 2006 New Forest, U.K.
Contact: Rachel Green,
Senior Conference Coordinator <rgreen@wessex.ac.uk>
Website: http://www.wessex.ac.uk/conferences/2006/eco-arch2006/cfp.html

Waste Management 2006
Fifth International Conference on Waste Management & the Environment
June 21 –23, 2006, Malta
Organized by Wessex Institute of Technology, U. K.
Contact: Katie Banham <kbanham@wessex.ac.uk>
Website: http://www.wessex.ac.uk/conferences/2006/waste2006/cfp.html

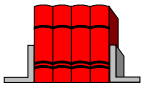
Urban Transport 2006
July 12-14 2006 Prague, Czech Republic
Organized by Wessex Institute of Technology, U.K. & Technical University Pardubice, Czech Republic
Sponsored by WIT Transactions on the Built Environment
Contact: rgreen@wessex.ac.uk

Air Pollution 2006
Fourteenth International Conference on Modelling, Monitoring and Management of Air Polution
May 22-24, 2006 The New Forest, U.K.
Contact: www.wessex.ac.uk
E-mail: enquiries@wessex.ac.uk

Geo-environment and Landscape Evolution
June 6-8, 2006 Rhoda, Greece
Organized by Wessex Institute of Technology, U.K.
Contact: Rachael Green
Senior Conference Coordinator
<rgreen@wessex.ac.uk>

The Sustainable City 2006
July 17-19, 2006 Tallin, Estonia
Organized by Wessex Institute of Technology, U.K.
Contact: kbanham@wessex.ac.uk

BOOKS



Urban Air Quality – Recent Advances
Edited by Ranjeet S. Sokhi & John G. Bartzis
Kluwer Academic Publishers 2002
ISBN: 14020-08384
Price US $ 98.00

Urban Forests and Trees
Edited by Cecil Konijnendijk, Kjell Nilsson, Thomas Randrug & Jasper Schipperijn
Springer
http://www.springeronline.com/sgw/cda/frontpage/0,11855,5-40109-22-4422 331-000html

Vegetables: Growing Environment and Mineral Nutrition
Edited by Ramdane Dris
WFL Publisher, Helsinki, Finland
ISBN: 952-9955-1-0
Price: Euro 70.00

Abiotic Stress in Plants
Edited by Sanita di Toppi & L. Pawlikskowronska, B
Dordrecht: Kluwer Academics 2003
Price: £ 67.00

Sulfur Transport and Assimilation in Plants: Regulation, interaction and signalling
Edited by Davidan, J-C, Grill, D, DeKok, L.J., Stulen, I, Hawkesford, M.J., Schnug E. Renneberg
Backhugs Publishers, Leiden 2003
Price: [a] 96.00

Sulphur in Plants
By Y.P. Abral & A. Ahmad
Dordrecht: Kluwer Academics 2003
Price: £ 121.00

Plant Biotechnology: The Genetic Manipulation of Plants
By Slater, A, Scott, N. & Fowler, M.
Oxford University Press 2004
Price: £ 19.99

Herbal Drugs and Biotechnology
Edited by P.C. Trivedi
Pointer Publisher, Jaipur, India 2004
ISBN:8171323812/KK-32856
Price US $ 67.50

Ethnomedicinal Plants
Edited by P.C. Trivedi & N.K. Sharma
Pointer Publisher, Jaipur, India 2004
ISBN: 8171323863/KK-32876
Price US $ 49.50

The Next World War: Tribes, Cities, Nations and Ecological Decline
By Roy Woodbridge 2004
University of Toronto Press
ISBN: 0820 8039
Price US $ 27.95

Health Aspects of Air Pollution
Published by WHO, Europe 2004
Website: www.euro.who.int/air/publications/ 20020621_3

Urban Transport XI
Urban Transport and the Environment in the 21st Century
Edited by L.C. Wadhwa & C.A. Brebbia 2005
Advances in Transport Series Vol. 18
ISBN: 1-84564-008-x
Price US $ 475 (Euro 445.50)
http://www.wessex.ac.uk/conferences/2005/ut05/index.html

Air Pollution XIII
Edited by C.A. Brebbia (U.K.) 2005
http://www.wessex.ac.uk/conferences/2005/air05/index.html

Sustainable Planning & Development II
Edited by C.A. Brebbia & A.K. Kungolos 2005
http://www.witpress.com/acatalog/025.xhtml

Knowing trees, I understand the meaning of patience.
Knowing grass, I can appreciate persistence.

- Hal Borland (1900-1978)

Printed and Published by
Dr. K.J. Ahmad
for International Society of Environmental Botanists,
National Botanical Research Institute,
Rana Pratap Marg, Lucknow-226001, India
Executive Editor :
Dr. H.M. Behl
Editors :
Dr. R.D. Tripathi
Dr. Mrs. Kamla Kulshreshtha
Dr. Amit Pal
Mr. Deepak Wahal
National Botanical Research Institute
Lucknow, India.
Tel. 2205831-35 Extn. 223, Fax : 2205836
E-mail : isebnbrilko@satyam.net.in
Website : http://www.geocities.com/isebindia/index.html

Printed at Prakash Packagers, 257-Golaganj, Lucknow Tel. : 0522 - 2621011, 2622423