



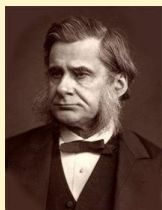
SciTech in Brief

Information Services Centre, No. 363, Bauddhaloka Mw., Colombo 07.

Science Quote

Science is simply common sense at its best.

Thomas Huxley (1825 ó 1895, an English biologist: Image- Wikipedia)



A PAINLESS WAY TO ACHIEVE HUGE ENERGY SAVINGS: STOP WASTING FOOD

Scientists have identified a way that the US could immediately save the energy equivalent of about 350 million barrels of oil a year, without spending a penny or putting a ding in the quality of life: Just stop wasting food. Their study, reported in ACS' semi-monthly journal Environmental Science & Technology, found that it takes the equivalent of about 1.4 billion barrels of oil to produce, package, prepare, preserve and distribute a year's worth of food in the US.

the US Department of Agriculture estimates that people in the US waste about 27 % of their food. The scientists realized that the waste might represent a largely unrecognized opportunity to conserve energy and help control global warming.

Their analysis of wasted food and the energy needed to ready it for

wasted food represents a substantial target for decreasing energy consumption in the U.S.," the article notes. "The wasted energy calculated here is a conservative estimate both because the food waste data are incomplete and outdated and the energy consumption data for food service and sales are incomplete."



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Michael Webber and Amanda Cuéllar note that food contains energy and requires energy to produce, process, and transport. Estimates indicate that between 8 and 16 % of energy consumption in the US went toward food production in 2007. Despite this large energy investment,

consumption concluded that the U.S. wasted about 2030 trillion BTU of energy in 2007, or the equivalent of about 350 million barrels of oil. That represents about 2 % of annual energy consumption in the U.S. "Consequently, the energy embedded in

Fats and oils	33%
Dairy	32%
Grains	32%
Eggs	31%
Sugar and other caloric sweeteners	31%
Vegetables	25%
Fruit	23%
Meat, poultry, fish	16%
Dry beans, peas, lentils	16%
Tree nuts and peanuts	16%

Various foods wasted in the US

Source: Source: ACS and www.bakeryonline.com

GOING FOR GREEN: 2012 LONDON 'GREEN' OLYMPIC

The vow made by the UK officials to put the sustainability and environment issues first paved the way for London to win the bid to host 2012 Olympic Games, said the Head of Design of the Olympic Delivery Authority (ODA). The organizers are not only hoping to top the medal list but also to impress the world with their green credentials.

Since Victorian time the Lower Lea valley, the location of the Olympic site, has been a haven for ancient landfills and factories with dubious environmental credentials. The world's first plastic factory and UK's first petrol refinery were moved out to Lea valley while London was developing. Today, Lea valley contains London's most contaminated land and the river Lea meandering through the valley used to be an industrial water way and is still polluted today. The Olympic development has started the regeneration of the valley by restoring the rivers and canals and cleaning up the polluted land.

Once the games are over, the site develops into a haven rich in biodiversity for local people to enjoy.

Before the actual construction, contamination of 250 hectare site had to be cleaned up. Soil contaminated with petrol, oil, lead, tar, cyanide and arsenic was dug up and decontaminated in a makeshift 'soil hospital' set up on site. The cleaning process involved piling the soil on to con-

crete beds and feeding it with vegetable oil and dairy products which accelerates the breakdown of the contaminants by encouraging the bacteria in the soil to breed. They used washing machines which shook oil, cyanide and lead free from the soil. Nearly 2 million tons of contaminated soil was cleaned. The cleaned soil was then used to landscape the Olympic park.



crete beds that was too contaminated to be cleaned was sent to specially licensed landfill.

The other aspect to handle before Olympic construction started was to see the alterations of the hydrology of the region. Building work affects the overland flood routes connecting high and low ground resulting in the floods in some parts of the site. To manage the floods a hydrological model was developed. With the help of the model area of the wetland marsh on the bank of the river was built. Then a culvert (a giant underground pipe) that drains water from the area at

risk of flooding and dumps it further downstream was also built.

ODA has stringent sustainability goals for its contractors: reuse or recycle 90 % of the entire construction waste, deliver 60 % of construction material by rail or barge and ensure all of the wood bought has been certified by Forest Stewardship Council (FSC),

an NGO that tracks timber to ensure that it is sustainably sourced. This FSC checks for the environmental malpractices.

Eight dust monitors on site text the FSC when the concentration of the tiny airborne particles rise above a critical threshold. FSC also ensure the good environmental practice carried out by one company is known to the others. As an example the 'Drip Tray' which placed beneath the machinery to prevent oil from dripping on to the ground which was inefficient during rainy days was replaced with 'plant nappy'. FSC spread the word.

The officials make sure that all the people put the environment first so the London Olympic would be a green Olympic.

Source: New Scientist, 2nd October 2010

Image: inhabitat.com

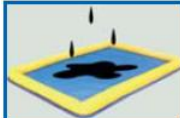

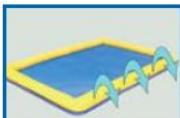

PLANT NAPPY - SECONDARY CONTAINMENT CATCHMENT TRAY

Plant Nappy is a secondary containment catchment tray for the containment of leaks and spills from equipment on construction sites. The tray allows the water to pass through the sides whilst retaining and absorbing oil to prevent the tray overflowing and oil escaping.

The base of the mat is made up of a non-permeable base fabric laminated with an oil soak felt and a permeable top fabric to allow free passage of contaminants.

The side wall is made up of the same permeable fabric with a self standing and recovery structure built within a different felt type with specific properties which allows free passage of water but still retains any contaminant residue.

The design is such that any drips of oil or fuel are caught in the base structure, as rain, or water from any source falls onto the mat it is allowed to escape through the side walls being filtered of contaminants as it leaves.

<p>1. The plant nappy is designed to sit under plant or machinery to capture drips of oil or fuel. The plant nappy base contains an oil soak filter which captures any spillages. It is protected by a permeable top which allows free passage of contaminants.</p> 	<p>2. The plant nappy design means that it is durable in all weather conditions and overcomes the problem of traditional drip trays filling with water. The plant nappy can be stood on uneven terrain and there will be no loss of performance. The plant nappy can hold up to 18 litres of oil</p> 
<p>3. The side walls of the plant nappy are made from a permeable filter fabric. The walls allow for free passage of water but not contaminants, the oil or fuel remains captured inside the plant nappy filter. The plant nappy discharges only clean water.</p> 	<p>4. Liners can be purchased for the plant nappy which helps extend its life. The liner sits snugly in the base of the nappy. Cleaning the liner is simple as the liner is easy to remove. To clean, squeeze out the contaminants into a suitable container. It is advisable that a mangle be used for this task.</p> 

Source: /www.darcy.co.uk/

Make a difference

Paper does grow on trees:900 million of them every year become pulp and paper. Recycled paper uses 60% less energy than virgin paper. Each ton of recycled paper saves 4400 kW-h of energy, 30000 liters of water and 19 trees and a tree has the capacity to filter up to 27 kg of pollutants from the air.



**Encourage paper recycling.
Use recycled paper.**

Time April 9th, 2007

Image: actualizers.blogspot.com

Flickr.com



© Duffanderson.com

NEW HYBRID DRUG, DERIVED FROM COMMON SPICE, MAY PROTECT, REBUILD BRAIN CELLS AFTER STROKE

The scientists created a new molecule from curcumin, a chemical component of turmeric, and found in laboratory experiments that it affects mechanisms that protect and help regenerate brain cells after stroke. Research scientist Paul A. Lapchak, Director of Translational Research in the Department of Neurology at Cedars-Sinai Medical Center, presented these findings at the American Heart Association International Stroke Conference.

Only one drug is now approved for ischemic stroke, which occurs when a clot blocks blood flow to the brain. Commonly called a "clot



-busting drug," tissue plasminogen activator (tPA) is injected intravenously to dissolve clots and reinstate blood flow. If blood and oxygen are restored in time, consequences of the stroke, such as speech, memory, movement and other impairments, may be reduced.

The new curcumin-hybrid compound, CNB-001, does not attack clots but instead repairs stroke damage at the molecular level that feed and support the

all-important brain cells, neurons.

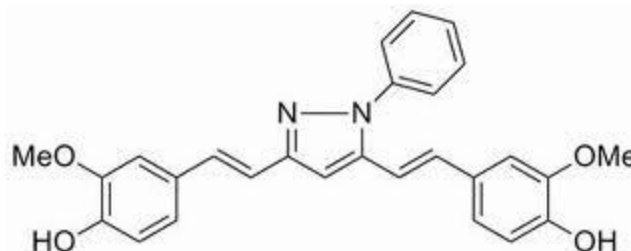
Curcumin has been studied for its potential to treat brain injury and disease, and while the substance itself looks promising, it has several drawbacks, especially as an emergency stroke treatment, which

must be quick to be effective: It is not well absorbed in the body, fails to reach its target in high concentrations, becomes depleted quickly, and is blocked from entering the brain by a natural protective mechanism called the blood-brain barrier. CNB-001 has many of the same benefits of curcumin but appears to be a better choice of compound for acute stroke because it crosses the blood-brain barrier, is quickly distributed in the brain, and moderates several critical mechanisms involved in neuronal survival, according to Lapchak, and expect the new drug to move to human clinical trials soon.

When brain tissue is deprived of blood and oxygen, a cascading series of interrelated events triggers at the molecular level, breaking down the normal electrical and chemical "signaling pathways" responsible for nourishing and supporting neurons. The environment quickly becomes toxic, killing

brain cells and destroying their support structures.

Theoretically, interrupting these harmful events and



restoring normal pathway function could prevent cell death and the memory and behavioral deficits that result, but it will take a cocktail of drugs or a drug capable of targeting many mechanisms to correct the many pathways damaged by stroke, Lapchak says. CNB-001 protects brain cells from damage by repairing four major pathways. One mechanism also plays a major role in the growth and survival of neurons.

The drug reduced stroke-caused "motor deficits", problems of muscle and movement control, in this laboratory study. It was effective when administered up to an hour after stroke, which correlates with about three hours in humans.

Turmeric has a long history of use in Ayurvedic and Chinese traditional medicine.

<http://www.physorg.com/>

Image: www.tradenote.net

NANOTECHNOLOGY USED TO CREATE ARTIFICIAL PALLADIUM

Scientists in Japan claim to have employed nanoscience to create an artificial form of palladium.

A technique developed by Professor Hiroshi Kitagawa and researchers from Kyoto University has generated a synthetic form of the rare metal.

It was produced by combining molecules of silver and rhodium - two metals that usually do not mix together - to create particles of an alloy that has similar properties to palladium.

The nanoparticles were used to develop a fine solution spray of the alloy, which it is thought

could be used in industrial applications rather than relying on Chinese imports of palladium, Professor Kitagawa said.



Palladium

He explained further research is now taking place with auto manu-

facturers and electronics companies to develop the process.

In related news, RNCOS, a leading market research and information analysis company, has forecast a compound annual growth rate of 19 per cent for the global nanotechnology industry from 2011 to 2013 in its latest forecast.

Source:

<http://shop.bsigroup.com/templates/Shop/v2/DisplayNewsDetails.aspx?aid=800323638&catid=20&utm>

New Additions

Status and Future Direction of
Water Research in Sri Lanka
(Proceedings)

Samad, M.
Wijesekera, N. T. S.
Birch, A. (Eds.)
IWMI

Acc. No. 40016

Seed Testing

Singh, G.

Gene-Tech Books

Acc. No. 39992

Intellectual Property Rights:
Critical History

May, C. & Sell, S.K.

Viva Books
New Delhi

Acc. No. 40000

Technology Transfer and
Joint Ventures Abroad

Azad, R. R.

Deep & Deep Publication
Pvt. Ltd.

Acc. No. 39998

Fuels and Combustion

Sarkar, S.

Universities Press, India

Acc. No. 39997

Edible Forest Insects:
Human Bite Back

Durst et al.

FAO of UN
Thailand

Acc. No. 40006

NEW SERIES OF OXYGEN SCAVENGERS FOR PLASTICS PACKAGING

A Spanish company and a leading supplier of advanced organoclay additives, has announced the development of a new series of oxygen scavenging additives which can be dispersed directly into packaging materials, offering a simpler, less costly, and more convenient alternative to conventional scavenging techniques such as UV-activated systems and oxygen scavenger packets. O₂ Block additive is primarily designed to maximize shelf life for diverse packaging made of materials such as LDPE, HDPE, PP, PET, and PLA for the food and pharmaceutical industries.

The new proprietary and patent-pending O₂ Block technology is based on surface-modified phyllosilicate clay that is functionalized with active iron to create a naturally sourced and highly efficient oxygen scavenging product. The technology's most innovative feature is the use of purified and modified layered clay as a performance-enhancing carrier of the oxygen-scavenging iron. Also

unique is the ability for the active iron to be dispersed directly in the polymer during the production process. The technology is based on the company's proprietary and extensive know-how in surface modification and dispersion.



During the proprietary production process, active iron is linked to the clay surface and a uniform dispersion is achieved. In addition, the iron deposited on the clay prevents platelet agglomeration which combined with unique surface modification ensures total additive dispersion.

Oxygen is depleted from the package by migrating through the packaging material and reacting with the dispersed active iron

from the O₂ Block additive. The reaction is swift and produces iron oxide which is linked inside the packaging.

All the ingredients in the O₂ Block formulation are generally recognized as safe by the European Union and the U.S. Food and Drug Administration. Food-contact approval is expected early next year. The oxygen scavenger is supplied as a micronized powder or a masterbatch. Scavenging capacity is directly linked to the amount of active iron. Therefore, dosing is tailored to the individual application by adjusting the masterbatch loading and/or active clay content to meet the required scavenging performance. The oxygen scavenger can be used in loadings of 1% to 10% in HDPE, LDPE, PET, and PLA.

Source:

www.bakeryonline.com

CLOUD COMPUTING

Cloud computing has become a hot topic in the computer field though some think it could be more vulnerable to computer crimes. However, cloud computing could be very useful and even helpful to those who have little knowledge in simple computer applications.

There are many remedies in cloud computing for problems such as losing data due to a sudden breakdown of the computer. But if you use cloud computing automatically the files are saved in regular time intervals. The other advantage is that one will never lose data if saved the file using cloud computing. Even CDs and almost all the other storage methods deteriorate with time cloud computing applications will still remain.

For a programmer cloud computing offers an advantage of creating non-operating system dependent programmes and the programme created will run on any operating system.

In an office the cloud computing could be used to maintain common documents and any number of members can access to the documents at any given time. This is specially useful in working on common documents such as reports and there is no need to have multiple copies.

Though there are many advantages, general computer users are unaware of the cloud computing.

Source: Vidusara 2nd March 2011

Events

Water Security for Policy Makers and Practitioners

Location: University of East Anglia, Norwich, UK

Date: 23 - 27 May 2011

Organisation: International Development UEA

Key objectives—The course will provide policy-makers with comprehensive background knowledge relevant to the increasingly important policy challenge of water security. The course will explore how the multiple levels of water security of human, community, state, international and global require broad but considered policy inputs. Emphasis will be placed on the inter-dependencies of different sectors (climate security, food security, energy security) that interact within a web of water security. The implications for national security and human security will be interpreted through an appreciation that water security for some can mean water insecurity for others. Emphasis will be placed on the importance of shifting global climate and trade patterns. Participants can expect to leave the course with an ability to critically assess and address current water security policy, to gain an appreciation of the relations between water security and energy, climate, food, human or national security, and to have extended their networks and resource base. A certificate of completion will be issued by the School of International Development, University of East Anglia.

Registration fees The course fee is £1,200 inc of B and B accommodation. Accommodation is available from the Sunday 22nd May to the Friday 27 May.

Registration details Please contact devc.train@uea.ac.uk for all further information

Contact Details Please contact devco.train@uea.ac.uk for all further information

<http://www.uea.ac.uk/dev/co/prodev/wspmp>

The 22nd Pacific Science Congress

Location: Kuala Lumpur, Malaysia

Date: 14 - 18 June 2011

Organisation: [Pacific Science Association](http://www.pacificscience.org)

The organizers of the 22nd Pacific Science Congress invite you to attend the Congress which will be held in Kuala Lumpur, Malaysia from 14 to 18 June, 2011. The Congress provides a multidisciplinary platform for scientists from the region to assess and prioritize issues requiring scientific research; brings together scientists from more remote states; catalyzes international and cross-disciplinary collaboration; and is a venue to establish and announce new research initiatives. The geographic scope of the Congress is the countries bordering the Pacific Ocean and the islands of the Pacific Basin. Recent Pacific Science Congresses have hosted between 1000-2000 participants from 40 to 50 countries in Asia, the Pacific Islands, Australia/New Zealand, Latin America, North America, and Europe.

Registration fees Early Bird Rates (until 31 March 2011): PSA Members: USD \$450 Non-Members: USD \$500 Students: USD \$200 Teachers: USD \$150 Accompanying Person: USD \$100

Registration details Registration includes: * Admission to all scientific sessions * Admission to exhibition * Lunch for 4 days * Opening Ceremony (14 June 2011) * Congress Dinner (15 June 2011) * Closing Ceremony (17 June 2011) * Congress Materials

Contact Details

Email: burnett@pacificscience.org

<http://www.22ndpsc.net/>

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