

SCAN AROUND THE GLOBE

Damage by Climate Change

The National Round Table on the Environment and the Economy (NRTEE), which the Canadian government had set up in 1988 to provide advice on environmental issues, has confirmed the necessity of curbing climate change.

According to the most likely scenario outlined by the panel, the damage done by global warming would be between 0.8 percent and 1 percent of GDP by 2050 and could hit almost 2.5 percent by 2075.

It says the north of Canada, the world's second largest country, is warming up at a much faster pace than the rest of the Earth. Measures recommended to help limit the damage are:

- Enhance forest fire prevention, control pests, and plant climate-resilient tree species
- Prohibit new construction in areas at risk of flooding in coastal areas
- Install pollution control technologies to limit ozone formation.

The NRTEE largely dismissed the idea that global warming could help a northern country like Canada by reducing heating costs and making it easier to grow certain kinds of crops.

(Canada – *Planetark News*, Sep 30, 2011)

Boosting Shale Gas

Chinese industry estimates, China may hold the world's largest shale gas supplies at 26 trillion cubic metres, larger than the 24.4 trillion cubic metres in the United States. Although drilling for shale gas is being opposed by environmentalists all over the world. China the second largest oil consumer of world now plans to treat shale gas as separate from conventional hydrocarbons to encourage companies outside of state-owned industry to invest. Government officials say, "We are working to establish shale gas as an independent resource. Companies with strong financial standing and technology may participate in bidding".

By making shale gas a separate resource, the government hopes to bring in smaller companies,

believing that key for the huge success of shale gas development in the United States was the number of independent explorers. But the government wants to avoid repeat of its experience in the coal sector, which was opened to many local miners leading to safety and environmental problems.

(China – *Reuter News*, Sep 2, 2011)

UN Green Plan

According to a report by UN Environment Program (UNEP), conserving key forests in Indonesia could generate billions of dollars in revenue, up to three times more than felling them for palm oil plantations, under a United National carbon reduction plan that would also secure water supplies and protect critically endangered orangutan apes.

Overall forest degradation through agricultural expansion, conversion to pastureland, infrastructure development, destructive logging and fires currently account for nearly 18 percent of worldwide greenhouse gas emissions, more than the entire global transport sector and second only to the energy sector.

UNEP Executive Director Achim Steiner said, prioritizing investments in sustainable forestry including REDD+ projects can, as this report demonstrates, deliver multiple Green Economy benefits and not just related to climate, orangutan conservation and employment in natural resource management.

The forested peatlands of Sumatra are among the most efficient carbon stores of any terrestrial ecosystem. In the last two decades, 380,000 hectares of Sumatran forests were lost to illegal logging each year, with an annual loss in carbon value estimated at more than \$1 billion.

The report recommends designating new forested areas for REDD+, taking into account the multiple benefits for carbon storage, orangutan habitat conservation and the protection of ecosystem services, while expanding palm oil plantations on land with low current use value and avoiding agricultural and timber concessions where conservation value is high.

(Indonesia – *UN News*, Sep 28, 2011)

NEW TECHNOLOGIES

Clean Coal Technology

ADA-ES Inc, a leader in clean coal technology, has successfully demonstrated a new patent-pending technology for producing refined coal ("RC") for use in coal-fired power plants. ADA's new technology, called "M45," expands ADA's market for RC beyond its patented and currently operating CyClean technology, which is limited to cyclone boilers.

During full-scale tests conducted last week, M45 achieved greater than 20% reduction in emissions of NOx and greater than 40% reduction in mercury emissions, thus demonstrating that the technology meets the standards necessary to qualify for IRS Section 45 tax credits of over \$6.33 per ton of RC. Based on the successful results of these tests, ADA has commenced fabrication of six M45 facilities, with the possibility of several additional facilities, with the intention of securing locations to demonstrate their operational capability before year-end.

Dr Michael Durham, President and CEO, stated, "We are excited about the successful demonstration of M45, and the potential for increased revenues and earnings that it creates."

(Pollution Online, Sep 22, 2011)

Jelly Based Lithium Batteries

Rechargeable batteries, including lithium batteries, are used in various electrical gadgets like laptop computers etc. However, lithium batteries have disadvantage that they use organic liquid electrolyte which can catch fire when over heated.

Now researchers from University of Leeds have developed a new polymer jelly that looks like a solid film, but it actually contains about 70% liquid electrolyte.

The researchers are promising that their jelly batteries are as safe as polymer batteries, perform like liquid-filled batteries, but are 10 to 20% the price of either.

The secret to their success lies in blending a rubber-like polymer with a conductive liquid electrolyte into a thin, flexible film of gel that sits between the battery electrodes.

(BBC News, Sep 10, 2011)

NEW PRODUCTS/EQUIPMENTS

Ozone Generator for Water Treatment

Primozone, a Swedish supplier of ozone generators for water treatment, has announced the launch of a series of innovative ozone generators that generate far more ozone while using far less energy than ozone generators on the market as claimed by the company.

The new ozone generators based on a patented new method generate ozone in high concentrations, resulting in more efficient water treatment and also much lower energy consumption. Primozone's new range of patented ozone generators produce between 100 and 900 grams of ozone per hour, with an ozone concentration of up to or more than 300 g O₃/Nm³O₂, or 20 percent by weight, which is many times higher than competing products.

(Primozone Production AB, Sep 15, 2011)

Solar/Electric Power Pump

Blackhawk Technology Company, manufacturer of linear rod pumps, is now introducing two heavy-duty models to its line of innovative and lower-cost Apollo Electric Linear-Rod Pumps, all featuring solar and low-amp grid power options.

The company now offers the heavy-duty Apollo 101 HD, which pumps to 150 feet or more (46 metres), and the Apollo 102 HD, which produces flow rates to 2.27 gpm (8.6 lpm). Apollo's linear-rod pump (LRP) technology means fewer moving parts and smoother operation for high efficiency at lower purchase and operating costs.

The solar option includes solar panels to power the pump directly and/or high-capacity storage batteries for long-term operation, ideal for remote locations not served by electricity or pneumatic power. The power supply option converts conventional grid 24 volt/5 amp AC power to DC at startup, running at 2.5 amps.

Mark Bertane, President of company said, "Blackhawk pumps go deeper, offer the broadest flow ranges and do not stall under vacuum – Blackhawks are more reliable in virtually all pumping environments, at lower lifetime costs."

(Blackhawk Technology Company, Aug 22, 2011)

AIR	WATER
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Standardizing Carbon Accounting

A group of international hotels, consisting of members of the International Tourism Partnership (ITP) and the World Travel and Tourism Council (WTTC), is collaborating on a groundbreaking initiative to standardize carbon accounting in the hospitality industry. The Carbon Measurement Working Group aims to reach a consensus on a single methodology for calculating carbon footprints and consistent metrics for communicating emissions. Currently, carbon measurement metrics vary widely which can lead to confusion among guests and investors. Additionally, the number of methodologies and tools in use make transparency within the industry difficult to achieve.

(Environmental News Network, Aug 31, 2011)

World's First Metro to Earn Carbon Credits

A UN release said Delhi Metro has become the world's first railway network to earn carbon credits from the United Nations for helping cut greenhouse gas emissions.

The transport system has helped reduce pollution levels in the city by 630,000 tonnes a year.

The system is being used by nearly 1.8 million people daily for commuting who would have otherwise travelled by cars, motorbikes or buses.

The Clean Development Mechanism gives firms in developing countries financial incentives to cut greenhouse gas emissions.

A UN statement said, "No other Metro in the world could get the carbon credit for the above because of the very stringent requirement to provide conclusive documentary proof of reduction in emissions."

Delhi's hi-tech metro system was launched in 2002. Parts of the network are underground while some sections use elevated tracks.

The system, which covers some of the city's most congested streets, is seen as the answer to Delhi's traffic chaos and has helped in lowering air pollution levels.

(BBC News, Sep 26, 2011)

Funds for Cleaning Water Bodies

The current state of some of the New Zealand's rivers and lakes is inconsistent with its clean, green brand.

Environment Minister of New Zealand Nick Smith announced the criteria and assessment panel for the new fund to help councils and communities clean-up nationally significant water bodies that have been polluted.

Dr Smith said, "This Fresh Start for Fresh Water Clean Up Fund is to encourage regional councils and communities to put plans together to clean up lakes and rivers that have become badly polluted."

He stressed "\$9 million is available for allocation from the fund in the next year. This brings the total government to fresh water clean ups in the years 2009-2014 to \$94 million as compared to \$16 million spent between 2004 and 2009. The five-fold increase reflects the importance this National-led government puts on improved fresh water management.

(beehive.govt.nz, Sep 14, 2011)

Management of Water

In a series of studies released by the Consultative Group on International Agricultural Research's Challenge Program on Water and Food (CPWF) says that there is enough water in the world's rivers to meet the demands of the expanding global population, but the rivers have to be better managed.

The key problem for water use is not scarcity but inefficient use of supplies because of poor governance and regulation. They found that, in many areas, water production can be substantially increased without harming the environment. In Africa, for example, most cropland is rain-fed and only four per cent of available water is captured for crops and livestock.

Simon Cook, leader of the CPWF Basin Focal Research Project said, "The failures are institutional and political".

(Science and Development Network, Sep 26, 2011)

SOLID/HAZARDOUS WASTE

E-Waste Disposal

A survey by charity Computer Aid reveals that 20 percent IT managers were not sure whether some of their company’s PCs end up in landfill after they dispose them of. Anja French, director of communications at Computer Aid said, “It is extremely worrying that many of the UK’s largest companies are not able to guarantee that their equipment is not illegally dumped in landfill. Companies must use disposal providers that can track exactly where their equipment is sent so as to avoid the devastating impact on health and the environment that e-waste can cause.”

French added, “Policies need to be in place to ensure more reuse of working equipment, as disposing of PCs after four years is a huge waste of resources since most computers will last at least double that.”

(Business Green, Sep 19, 2011)

Waste-Free School Lunch

The schools in US are requesting children to bring their lunch items, including drinks, in reusable or compostable container rather than throw-away plastic containers.

Emily Hyde, assistant headmaster of Archway Classical Academy at Veritas said, “We try to be sensitive to keeping costs down for families or new charter school in Phoenix that requires a reusable water bottle and lunch box for each student. It seemed like the economical choice.”

However, this move is making parents think on the subject. “Waste-free lunch” policies has got them thinking about how to cut down on the disposables. Certainly the idea of helping schools generate less garbage from piles of discarded plastic bags and packaging is worthwhile and really doesn’t take too much effort.

Maybe the message to go green and reduce waste is really taking hold, one lunch box at a time. Should more schools institute waste-free lunch policies?

(Take Action Now, Aug 26, 2011)

HEALTH

Health Effects of Flame Retardants

A new study on use of polybrominated diphenyl ethers (PBDEs) in flame retardants, though phased out, but still present in older furnishings, indicates lower birth weights in newborns of women exposed to it during pregnancy.

Evaluating levels of PBDEs in blood samples of 286 pregnant women, researchers found that every 10-fold increase was tied to a 4.1-ounce drop in the birth weight of their babies.

PBDEs were phased out in new products in 2004. Kim Harley, study author, said, “If mothers don’t gain as much, babies can be smaller”, adding that PBDEs are believed to be ingested orally rather than inhaled or absorbed. So stringent hand-washing and vacuuming can help control the chemicals dispersal.

(Health Day, Aug 30, 2011)

Health Affects of Nitrogen Pollution

Billions of people owe their lives to nitrogen fertilizers – a pillar of the fabled green revolution in agriculture that averted global famine in the 20th century. However, according to Alan Townsend, an ecology and evolutionary biology professor at the University of Colorado at Boulder, a single atom of reactive nitrogen can contribute to air pollution, climate change, ecosystem degradation and several human health concerns. Damage to the ecosystem – a biological community interacting with its nonliving environment – includes water pollution and reduced biological diversity, including the loss of certain plant species.

Townsend said, “It’s been said that pollution is the biggest environmental disaster that nobody has heard of.” He added that people can see an oil slick on the ocean, but hundreds of tons of nitrogen spill invisibly into the soil, water and air every day from farms, smokestacks and automobile tailpipes. But the impact is there – unhealthy air, unsafe drinking water, dead zones in the ocean, degraded ecosystems and implications for climate change. But people don’t see the nitrogen spilling out, so it is difficult to connect the problems to their source. The concern focuses only on so-called “reactive” nitrogen.

(The Hindu, Aug 29, 2011)

CASE STUDY

EIA SYSTEM IN THE PHILIPPINES

Introduction

The Philippine Environmental Impact Assessment (EIA) System was formally established in 1978. The institutionalizing of its implementing rules and regulations was completed four years later. The Department of Environment and Natural Resources was given the task of administering the EIA System through the Environmental Management Bureau and its regional offices.

A detailed procedural manual was issued in 1992. It discussed the step-by-step procedure in the preparation and review of Environmental Impact Statements.

The second edition of the manual provided a detailed discussion of the guidelines in the conduct of the Environmental Risk Assessment and Environmental Management Plans.

In spite of its strengthened features, existing environmental legislation is still not enough to combat the escalating deterioration of the environment. In response to this concern, the government is implementing a number of projects aimed at pilot-testing the integration of different strategies and frameworks in environmental management.

Issues and Concerns of System

Intent and Timing

The EIA system has been largely perceived as catering only to the needs of the industrial sector. In many cases, a major stumbling block to the EIA process is the lack of a deliberate move from all sectors to embark on the process right at the beginning of the project cycle. This dilemma is compounded by the seemingly lack of political will to ensure earlier assessment.

Institutional Capacity of the Implementing Agency

Devolving the task to the regional offices to issue and monitor environmental clearances covering the whole range of projects is taking a long time to

implement, due to the lack of both competent government personnel and readily available expertise and resources at the national and local levels.

There is also an apparent lack of coordination and an overlapping of functions between the government agencies, making the process more circuitous, time-consuming and ineffective.

Recommendations

The government should strengthen the use of the EIA system as a planning and monitoring tool rather than a command and control instrument in order to optimize scarce resources and effectively implement the system. The government needs to rationalize its present structure in order to provide opportunities for growth and satisfaction to its personnel. Training and career opportunities should also be provided to keep experienced and competent staff from leaving the government service.

The methodologies used in the preparation of environmental assessment studies, the conduct of reviews and the monitoring of compliance should be apparent to the stakeholders. Systems should be put in place so as to raise confidence among the stakeholders involved in the decision-making process. It is of utmost importance that transparency in the conduct of the study should be observed in order to maintain the impartiality of the entire process. The accreditation of the consultants and the reviewers should be strictly enforced in order to maintain the integrity and the professionalism of the process.

There should be a dedicated commitment from the government to strengthen the laws, rules and guidelines pertaining to the EIA system. There is a growing need to integrate the different environmental regulations into one coherent law so as to make the entire process more effective and consistent. Legislation should reflect the present aspirations of society and should not delay in addressing those needs. The public should be given the right to participate in, and be informed of, the decisions made in matters concerning the environment so as to increase their awareness and participation in a process that greatly determines their well-being and their entire future.

AUDIT GUIDE

SPECTROSCOPY ANALYZER FOR ISOTOPIC CO₂

Introduction

The Environmental Technology Verification (ETV) program of the US Environmental Protection Agency evaluates innovative technologies in accordance with rigorous quality control assurance protocol. Operated by Battelle in cooperation with EPA's National Exposure Research Laboratory, the Advanced Monitoring System (AMS) Center, evaluated the performance of isotopic carbon dioxide analyzers for carbon sequestration monitoring.

Technology Description

The Model G1101-i is a low-drift, high-precision analyzer designed to measure the stable isotope ratio of carbon in CO₂ and CO₂ concentration. This analyzer is based on cavity ring-down spectroscopy (CRDS), which is a technique in which a gas sample is introduced into a high-finesse optical cavity, and the optical absorbance of the sample is determined, thus providing concentration or isotopic ratio measurements of a particular gas species of interest.

The analyzer continuously scans a laser through a sample, and determines individual carbon dioxide rovibrational resonant absorption lines for ¹²CO₂ and ¹³CO₂. Each spectrum is comprised of absorption loss as a function of optical frequency. The concentration is proportional to the area under each measured spectral feature. Concentration measurements are provided approximately every second, corresponding to a total of 100 ring-down and wavelength monitor measurements, and the isotope ratio (¹³C/¹²C) is derived from the ratio of the ¹³CO₂ and ¹²CO₂ concentrations in the sample volume.

Verification Test Description

This verification test of the Model G1101-i was conducted from July 9 through August 17, 2010 at Battelle Laboratories in Columbus, OH, Battelle's Ambient Breeze Tunnel (ABT) in West Jefferson, OH, and a geological carbon sequestration site located at a coal-fired power

plant in West Virginia. Performance of the Model was verified for carbon dioxide (CO₂) concentration and the stable isotope ratio of carbon in CO₂.

Model G1101-i was evaluated in terms of:

(a) Accuracy and bias, (b) Linearity, (c) Precision, (d) Response time, (e) Minimum detectable leak rate, (f) Comparability, (g) Data completeness and (h) Operational factors.

Verification Results

The verification of the Model G1101-i is summarized below. The estimate of uncertainty in the nominal CO₂ concentrations for dilutions used to evaluate the Model G1101-i was approximately 7%.

Concentration Accuracy, Bias, Precision, and Response Time: The accuracy of the Model G1101-i was assessed over the range of 100 ppm to 5,000 ppm in terms of %R, which ranged from 90 to 113%, with an average of 96%. Bias, or the average percent difference between the Model G1101-i response and the known value, was 4.0%. Precision of the Model G1101-i was determined from the average responses to triplicate challenges at each of 11 CO₂ concentrations. The relative standard deviation values ranged from 0.10% to 1.2%, with an average of 0.30%. The average 95% response time was 142 seconds for rise time and 152 seconds for fall time.

Comparability to Reference Methods: Comparability was determined as the accuracy (%R) and bias (average percent difference) of the Model G1101-i response compared to CO₂ concentration (NDIR) and δ¹³C (IRMS) reference method results for 10 duplicate grab samples of ambient air. The average accuracy for CO₂ concentration was 98% with a range of 94% to 101%. For δ¹³C, the average difference was -3.0% and values ranged from -3.5% to -2.1%. Bias was calculated separately for each site. At the ABT and GS site, concentration bias was -0.20% and -2.5%, respectively.

Operational Factors: The Model G1101-i was installed in the laboratory and at both field sites, no formal training by the vendor was necessary. The Model G1101-i did not generate any waste or use consumable supplies.

ENERGY SCENE

Germany Opts for Wind Power

The announcement by Germany's Chancellor Angela Merkel and the Christian Democratic Union led political alliance to completely phase out nuclear power by 2022 is boosting demand across the alternatives and renewable power value chain. As a result, the EU's largest member nation will add 1,800 megawatts (MW) worth of new wind turbines this year, 16% more than the 1,551 MW total for 2010, according to BWE, the German Wind Energy Association. Installed wind power capacity totaled 27,214 MW in Germany last year, up 5.6% from 25,777 in 2009, according to the European Wind Energy Association.

European offshore wind power capacity has grown 4.5% in the first half of 2011, as 101 new offshore wind turbines with a total 348 MW capacity were connected to power grids in Germany, Norway and the UK. Another 2,844 MW are currently under construction.

Germany is the first industrial power to even seriously consider a complete phase out of nuclear power.

(Clean Technica, Aug 2, 2011)

Renewable Energy Improves Performance

REN21 report shows despite great recession and whatever happened in 2010, the renewable energy growth was strong last year. Renewable resources wound up supplying 16% of global final energy consumption and showed strong growth in all sectors tracked – power, heat and transport.

In electricity sector, renewable resources supplied an estimated 20% of global annual demand. Renewable power accounted for approximately 50% of new electric capacity globally and derived nearly 20% of the global electricity supply. By early 2011, fully 25% of global power capacity from all sources came from renewable.

China and emerging market countries now account for more than 50% of renewable energy resources, while renewable energy rose 5.6% in the US, to account for about 10.9% of domestic primary energy production.

(Environmental News Network, Aug 3, 2011)

LEGAL SCENE

Grazing Forest Land Challenged

Environmental groups like Center for Biological Diversity and Western Watersheds Project filed complaint in the US District Court in Tucson against US Forest Service, over decisions allowing livestock grazing on nearly 225,000 acres of national forest lands in Arizona.

According to the lawsuit, each of the grazing decisions challenged violates one or more of the three criteria laid down by the Congress. In some cases, the agency permitted increased grazing above historic levels. In others, it allowed grazing at historic levels despite data showing that it exceeds the land's carrying capacity. The lawsuit demands more rigorous study and disclosure of environmental impacts and economic costs of grazing in each allotment.

Erik Ryberg, an attorney with Western Watersheds Project said, "Livestock grazing in Arizona' hot, dry deserts can be extremely harmful to the plants and animals that evolved here, and it uses up a tremendous amount of water and forage that would otherwise go to native species."

(Environmental News Network, Aug 26, 2011)

San Francisco City Sued

In July, San Francisco's Board of Supervisors approved a 10-year, \$112 million contract to send 5 million tons of the city's trash to Recology's Ostrom Road Landfill in Wheatland. The Recology contract, which is scheduled to begin in 2015, has been heavily opposed by Yuba County residents and environmentalists.

Environmental groups have sued San Francisco over city's plans to send train loads of waste up to 5 million tons of waste to a landfill in the city of Wheatland.

The environmentalists in their legal case in the San Francisco Superior Court alleged that according to the Yuba Group and SPRAWLDEF neither the city nor Recology has identified the routes that they plan to use to ship the garbage.

San Francisco officials violated state law by failing to conduct an environmental impact.

(The Sacramento Bee, Aug 26, 2011)

EXPERTS CONVERGE

Energy Expo 2011

India is world's fifth greatest energy consumer with an expected GDP growth of 7-8%. The energy demand in India has grown by about 700% in the last four decades.

Wind energy is the fastest growing source of commercial energy with India being 5th largest wind energy producer.

This event being organized by Confederation of Indian Industry (CII) and supported by the Ministry of Power, Government of India will be held from Dec 1-3, 2011 at Gujarat University Exhibition Hall, Ahmedabad.

Power India 2011

An Exhibition on Power and Energy as well as a Conference on India's Power Sector Outlook will take place between 10-12 December 2011 at Bombay Exhibition Centre, Goregaon (E), Mumbai. The target mission "Power for all by 2012" would mean achieving the target of 1000 KwHr (units) of per capita consumption of electricity by this period.

The Power & Energy Infrastructure sector in India is poised for a major take-off. The APDRP (Accelerated Power Development & Reforms Programme 2002-2012) has seen an addition of around 22,000 MW during last five years, and during the next five years, a capacity addition of over 78,000 MW has to be set up by 2012, a commitment of 15,600 MW capacity addition per annum.

Asia Pacific 9 Deepwater

China Decision Makers Consultancy (CDMC), one of the most influential organizations in deep-water industry is organizing 'Asia Pacific 9 Deepwater' event on 1st and 2nd December, 2011 having content-rich sessions and case studies. The conference would discuss subject matters like: Policy Guidelines and Upcoming Projects, New Investment Partnership and New Business Models, Offshore Technology Innovation to Boost Deepwater Development in Asia Pacific, Developing Floating Production Market and Surging Demand for Offshore Vessels, Integrating Flow Assurance into Risk Management of Deepwater Developments. There would also be Panel Discussion.

KNOWLEDGE SPREADS

APO Eco-Product Directory 2012

The APO Eco-Products Directory and Database are comprehensive listings of products and services designed to help minimize impacts on the environment and mitigate the effects of global warming offered by companies and organizations within the Asia-Pacific region. The directory, published every year since 2004, and the database launched online since 2010, aim to contribute to more sustainable development in the Asia-Pacific region by promoting the concept of green purchasing and introducing various environmentally friendly products and services to businesses, consumers, and governmental agencies.

(APO News, Aug-Sep, 2011)

Climate Change & Natural Resources: A Book of Activities

This new book consists of 'activities' that students can do on various environmental topics. As per the current guidelines, the assessment will not be based on the conventional 'study-text-books-write-examination' mode. Grades will depend on how active the examinee has been 'on the ground'.

The new publication on this subject is an attempt to lend teachers a helping hand. It unfolds in two sections: Climate Change: how to make sense of it all, & Natural Resources: how to share and care. Here, the key issues selected adhere strictly to curriculum guidelines. However, they are introduced to students not as a paragraph to memorise, but as an activity to do.

Each activity sheet begins with a Curriculum Connect, a brief note to teachers that matches suggested assignments to the curriculum stream (sciences, social sciences etc.) to the class level (primary, mid or senior). Likewise, Gobar Gyan, a succinct backgrounder, that precedes each activity set, explains to students why they are being asked to do the task. Determined effort has been made to make each of these four-page activity sheets self contained. Each activity sheet includes references to external information materials, online linkages and relevant data.

(Centre for Science and Environment)