



**WORLD ASSOCIATION OF SOIL &
WATER CONSERVATION
(WASWC)**

NEWSLETTER

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In English, Spanish, French, Chinese, Portuguese, Bahasa, Russian,
Vietnamese, Arabic, Thai

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Conserving Soil and Water Worldwide – [Join WASWC](#)

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WASWC Mission: To promote worldwide the application of wise soil and water management practices that will improve and safeguard the quality of land and water resources so that they continue to meet the needs of agriculture, society and nature.

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The WASWC Newsletter seeks to keep conservationists worldwide informed of new developments in the field of soil and water conservation and land management issues. Please send editorial contributions to the editor at sskukal@rediffmail.com

PRESIDENT'S MESSAGE

Dear members of World Association of Soil and Water Conservation, friends and colleagues



I am happy to learn that the first issue of Newsletter of WASWC is now out in your hands. Friends, no work is complete without the feedback of the members. I may request all the members of WASWC to go through the newsletter and send their feedback in the form of suggestions for its improvement as we believe that there is always scope for improvement. I must congratulate the editorial team for compiling their first independent issue of WASWC newsletter. Together we can help them to make the things better with time. Friends, we are always in need of good material for the newsletter including the news of various soil and water conservation issues and views of the members on the important challenges being faced by mankind.

The LANDCON0905 meeting in the series of WASWC meetings, is going to be held in University of Belgrade, Serbia from May 26-30, 2009. I hope that many of us shall be there and will share each other's thoughts to further the cause of World Association of Soil and Water Conservation. I wish this conference in Serbia to be a great success and we hope to include a detailed summary in the next issue of the newsletter.

Miodrag Zlatic

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EDITOR'S NOTE



Dear colleagues and friends,

Friends, I welcome you all to this first issue of 2009 which we have compiled independently. The tips given to us by Dr. Samran Sombatpanit in this direction proved to be very handy for us, but still we believe that much more needs to be done in future. But this will not be possible without the help of all of you. I request you to send us your feedback regarding the newsletter and also send us the news and views on various issues related to soil and water conservation.

In the previous two issues I had offered to have a discussion on such an interesting topic as "Indigenous Technical Knowledge" (ITK) for the management of soil and water resources. In fact I did get luke warm response from the members despite of the fact that this issue is worth discussion. Every region has its own site-specific ITK which has been passed over since centuries simply through the word of mouth. Today I was happy to note that The European Commission has organized the meeting "Research Connection 2009: A major event on EU research initiatives" which was held in Prague (7-8 May 2009). In this context, a Forum on "ITKnet: Innovative and Traditional Knowledge network for the proper use of natural resources" (Forum 2) was scheduled for the morning of 7 May. The aim of this Forum was to propose a networking space with the following objectives:

- Opening the existing network to new European member states.
- Sharing and disseminating sustainable and innovative techniques based on the use of traditional knowledge.
- Discussing and implementing the ongoing pilot projects.
- Organizing and promoting projects on the new sustainable technologies in the FP7 context.

The objectives of the International Centre on Traditional Knowledge (Florence, Italy) were mainly focused on to:

- Recognize study and make an inventory of Traditional Knowledge.
- Share and promote the dissemination of knowledge from the local level to the international level.
- Assure the protection of Traditional Knowledge.
- Promote integration between Traditional Knowledge and the scientific system.
- Defend the rights of local communities and indigenous populations holding Traditional Knowledge and indigenous science systems.
- Promote the dissemination and the innovative use of Traditional Knowledge.
- Implement the use of traditional practices for the realization of works and participatory approach in the choice of technological infrastructures.
- Promote protocols that adopt Traditional Knowledge in Parks, protected areas and UNESCO sites.
- Contribute to the protection of traditional cultures and cultural diversity.
- Promote the realization of an International Convention and of a World Organism for Traditional Knowledge.

I do expect Pietro Laureano to send us a detailed report on this forum so as to start a debate on how to utilize ITK for better adoption of resource conservation technologies all over the world.

Friends, please come forward with your views and suggestions for improving this platform of ours (I mean Newsletter) to come together for betterment of mankind. Our predecessors particularly Dr. Samran Sombatpanit have taken great pains in sustaining its importance. The news and views from the members and organizers of major events in the direction of resource conservation are most welcome.

(SURINDER S KUKAL)

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AWARDS

IPNI SCIENCE AWARD FOR DR. JOHN RYAN OF ICARDA



Dr. John Ryan

The International Plant Nutrition Institute (IPNI) has named Dr. John Ryan of the International Center for Agricultural Research in Dry Areas (ICARDA) as the winner of the 2008 IPNI Science Award. Dr. Ryan is Soil Fertility Specialist/Principal Scientist/Consultant, located at Aleppo, Syria. He receives a special plaque plus a monetary award of US\$5,000 (five thousand dollars).

“We are honored to announce John Ryan as the recipient of the IPNI Science Award. He is a truly outstanding scientist and most deserving of this recognition. His distinguished career has included teaching, research, extension, and service. And Dr. Ryan has been prolific in the number of quality publications he has authored, co-authored, contributed to, or edited,” said Dr. Terry L. Roberts,

President of IPNI. “Dr. Ryan has worked on five continents during his career and has bridged the gap between the developed and undeveloped world.”

Dr. Roberts also acknowledged the other outstanding nominees for the award, and encouraged future nominations of qualified scientists. Private or public sector agronomists, soil scientists, and crop scientists from all countries are eligible for nomination. This is only the second year the IPNI Science Award has been presented. The previous recipient in 2007 was Dr. M.S. Aulakh of India.

Born in Tipperary, Ireland, from a farming background, Dr. Ryan earned his B.Agr.Sc. in 1967 at University College Dublin. Dr. Ryan subsequently received his Ph.D. in Soil Science at University College Dublin/National University of Ireland, in 1971. Later, while serving as a post-doctoral researcher in soil science in the Soil and Water Science Department as a Fulbright Scholar at the University of Arizona, he earned his M.S. in Agricultural Education. In 1999, he was awarded the Doctor of Science (D.Sc.) degree by University College Dublin based on significant published work.

Before joining ICARDA, Dr. Ryan was Soil Fertility Specialist/Professor of Agronomy with the University of Nebraska, working with the USAID/MIAC-Maroc Project based at Aridoculture Center, Settat, Morocco, from 1987 to 1992. From 1975 to 1986, he was Professor of Soil Science at the Faculty of Agricultural and Food Sciences, American University of Beirut, in Beirut, Lebanon.

At ICARDA, Dr. Ryan's innovative strategic research (soil fertility/ agronomy/ crop nutrition) has involved wheat, barley, chickpea, lentil, vetch, and medics, focusing on sustainability in long-term cropping systems in rotation trials. Other crop-focused concerns include water and nutrient use efficiency, supplemental irrigation, wastewater use, and conservation tillage. His work on efficient fertilizer use for the past three decades has been a factor in the 10- to 20-fold increases in regional fertilizer use.

Dr. Ryan's other significant contributions include increasing awareness of micronutrients for crop growth and nutritional quality in Middle Eastern soils and demonstration of the potential of legume-based, cereal rotations to sequester carbon and improve soil quality and crop water use efficiency. While his work is directly related to the Mediterranean, it has implications outside the region. His innovative research has led to publication of more than 165 journal articles, 16 books, 25 chapters, 24 internal articles, 48 conference proceedings, 170 abstracts, and 30 reports.

During his career, Dr. Ryan has served on editorial boards of three international journals and four regional journals. He is a member of the American Society of Agronomy (serving as Chair of its International Division), the Soil Science Society of America, the Crop Science Society of America, the International Union of Soil Scientists (serving as Chair of its Soil Fertility and Plant Nutrition Division, 2002-2010), and the Soil and Plant Analysis Council. He served on the World Phosphate Industry's Scientific Advisory Committee (1997-2007) and is involved in several scientific networks.

Dr. Ryan is a Fellow of the American Society of Agronomy (1998) and the Soil Science of America (1999). He received the International Soil Science Award (1997), the International Service in Agronomy Award (2004), and the International Service in Crop Science Award (2008), being the only scientist from the CGIAR to receive all three international awards from the Tri-Societies. In 2007, he received the Soil Science Distinguished Service Award from Soil Science Society of America, and the Benton Jones Award from the Soil and Plant Analysis Council from North America. He was also the recipient of the prestigious International Crop Nutrition Award from the International Fertilizer Industry Association (IFA) in 2006, and was accorded the "Distinguished Citizen Award" from the University of Arizona (2000). In recognition of his lifetime services to international soil science, Dr. Ryan was recently announced as Honorary Member of the International Union of Soil Scientists (2008); the Award will be presented at the IUSS World Congress in Brisbane, Australia in 2010.

The IPNI Science Award is intended to recognize outstanding achievements in research, extension, or education, with focus on efficient and effective management of plant nutrients and their positive interaction in fully integrated crop production that enhances yield potential. Such systems improve net returns, lower unit costs of production, and maintain or improve environmental quality. The recipient is selected by a committee of noted international authorities.

More information on website: www.ipni.net/awards.

African Researcher Recognized for Work on Soil Fertility Restoration and Balanced Fertilization



The International Fertilizer Industry Association (IFA) announces winner of the 2009 IFA International Crop Nutrition Award: Dr. André Bationo is the Director of the West Africa program of the Alliance for a Green Revolution in Africa (AGRA), based in Accra, Ghana, and Senior Program Officer of AGRA's Soil Health Program. This award recognizes his contribution to soil fertility research and development in Sub-Saharan Africa and, in particular, his efforts to promote research in the field of efficient, balanced and environment-friendly fertilization.

André Bationo's research has shown that nitrogen (N) and phosphorus (P) are the most limiting nutrients in the Sudano-Sahelian zone of Africa and that fertilizer use efficiency in this region can be improved through proper placement and combination with organic inputs. Technologies on the use of rock phosphate crop residues and cattle manure have also resulted in improved crop yield, soil fertility and reduced cost of production among smallholder farmers in the Sudano-Sahelian zone. He has contributed to about 300 scientific publications. In collaboration with researchers at the International Crop Research Institute for the Semi-Arid Tropics (ICRISAT), the International Center for Soil Fertility and Agricultural Development (IFDC) and universities, André Bationo pioneered the development of the fertilizer microdose technology in West Africa to reduce the risk of crop failure. Farmers adopting this technology have been able to record yield increases of 50 to 100 percent. In Niger, for example, 5,000 farm households in twenty pilot sites adopted fertilizer microdosing in just three years. The technology has subsequently been adopted in Mali, Burkina Faso, Senegal and many more other African countries.

In an effort to link farmers to markets, André Bationo's research has also encouraged the adoption of the Inventory Credit System (ICS) and a revolving fund to remove the barriers to the adoption of soil fertility restoration technologies. The combination of the appropriate localized soil fertility improvement technologies, post-harvest credit and storage of grain as collateral ("warrantage"), enabling farmers to sell crops later in the season for higher prices and higher profits, has helped farmers in Niger produce 50 per cent more food, increase their farm incomes while protecting their natural resources.

André Bationo has integrated both on-station and on-farm research using participatory approaches to ensure that new technologies suit the socio-economic and biophysical conditions in which farmers live and work. His most recent focus has been on Integrated Soil Fertility Management (ISFM), in particular on the development and refinement of soil fertility improvement technologies involving the use of inorganic fertilizers, animal manures, grain legumes, agroforestry options, integrated nutrient management options, and soil, water and nutrient conservation.

Dr. Bationo is the 18th recipient of the Award, but the first African. He was nominated by Industries Chimiques du Sénégal (ICS). He graduated from Laval University in Canada with a Ph.D. in Soil Chemistry and has then been involved in research and programme management for the past 25 years. His last two positions were at the Tropical Soil Biology and Fertility Institute of the International Center for Tropical Agriculture (TSBF-CIAT) in Nairobi, Kenya as Coordinator of the African Network for Soil Biology and Fertility (AfNet), and previously at IFDC in Niamey, Niger working in joint IFDC-ICRISAT research projects.

The International Fertilizer Industry Association (IFA) grants every year the IFA International Crop Nutrition Award for research that has led to significant advances in crop nutrition and that has been communicated successfully to the farmers in the form of practical recommendations. Dr. Bationo will receive the Award at the IFA Annual Conference on Tuesday, 26 May 2009 in Shanghai, China.

FAO recognizes journalists' role in the fight against hunger

Journalists are key allies for FAO in raising awareness of the problem of hunger in the world. Journalists inform readers, listeners and viewers around the world of the plight of those who do not have enough to eat. They communicate complex agricultural and economic issues to the wider public. They report on successful solutions and projects in the battle against hunger. And they provide millions of farmers with valuable information on how to produce more food in a sustainable way.

In recognition of the important role of the media in the fight against hunger, FAO has since 1979 presented the A.H. Boerma Award to journalists or groups of journalists from around the world who have helped focus public attention on food security and rural development in developing countries.

The award honours former FAO Director-General Addeke Hendrik Boerma (1968-1975). Winners receive US\$10,000, a medal inscribed with their name and a personalized handcrafted scroll. The prize is awarded every two years during the FAO Conference.

MEMBERS' FORUM

Dear Dr. Samran,

In continuation of earlier publications, the team of editors of WASWC have brought out its publication No. 4 on SWAT which deserves high compliments. The publication is very comprehensive for the global use of SWAT. The impact assessment of soil and water conservation measures is very complex due to the dynamism of the process. The SWAT technology was in limited use but now this publication would help in its global application. The DVD supplied along with the publication is very useful for understanding the SWAT and its application through the solution. The WASWC deserves high appreciation for their hard work in bringing this important publication.

With warm personal regards,

Dr. Suraj Bhan

President, Soil Conservation Society of India (SCSI), New Delhi

Dear Dr. Kukal,

I was very happy to read the 24 (4) issue of newsletter of WASWC. The great efforts put in by your and your team were reflected from different items in the newsletter. I feel that we the scientists should come forward and use this newsletter as a link among ourselves for discussions on different issues being faced by the world community. Dr Kukal, I am mainly concerned about the depleting water resources in different parts of the world along with the changing climate scenario and it is the right time that we may make collective efforts to at least minimize the effects of these issues.

Good luck in your future endeavors.

Dr. S S Bawa (bawasoiils@yahoo.com), Sydney, Australia



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OBITUARY



Dr. Khubchand Gayanchand Tejwani (July 1, 1921-March 9, 2009) devoted over five decades to Conservation and Management of Natural Resources – Land, Water and Forests. He was a Researcher, Teacher, Author and Builder of Institutions. For his versatility and holistic approach he was conferred with awards like honorary membership by Soil Conservation Society of India and World Association of Soil and Water Conservation. He was honorary/national fellow of East-West Centre, Honolulu, USA, Indian Association of Soil and Water Conservationists (IASWC), National Institute of Ecology and Indian Society of Agro Forestry (ISAF). Through the K.G. Tejwani Charitable Trust, he has instituted professional awards from IASWC and ISAF besides scholarships for higher education and study.

The members of the WASWC record their profound sorrow at the loss of this professional legend from India.

MEMBERS' CONTRIBUTIONS

Nuclear fusion-fission hybrid could destroy nuclear waste, contribute to carbon-free energy future

Physicists at The University of Texas at Austin have designed a new system that, when fully developed, would use fusion to eliminate most of the trans-uranic waste produced by nuclear power plants. The invention could help combat global warming by making nuclear power cleaner and thus a more viable replacement of carbon-heavy energy sources, such as coal. The waste destruction system will allow nuclear power—a low carbon source of energy—to take its place in helping us combat global warming. The physicists' new invention could drastically decrease the need for any additional or expanded geological repositories. The scientists propose destroying the waste using a fusion-fission hybrid reactor, the centerpiece of which is a high power Compact Fusion Neutron Source (CFNS) made possible by a crucial invention. The CFNS would provide abundant neutrons through fusion to a surrounding fission blanket that uses trans-uranic waste as nuclear fuel. The fusion-produced neutrons augment the fission reaction, imparting efficiency and stability to the waste incineration process. Kotschenreuther, Mahajan and Prashant Valanju of the IFS and Erich Schneider of the Department of Mechanical Engineering report their new system for nuclear waste destruction in the journal *Fusion Engineering and Design*. The scientists' waste destruction system would work in two major steps.

First, 75 percent of the original reactor waste is destroyed in standard, relatively inexpensive LWRs. This step produces energy, but it does not destroy highly radiotoxic, trans-uranic, long-lived waste, what the scientists call "sludge." In the second step, the sludge would be destroyed in a CFNS-based fusion-fission hybrid. The hybrid's potential lies in its ability to burn this hazardous sludge, which cannot be stably burnt in conventional systems. To burn this really hard to burn sludge, it really needs to hit it with a sledgehammer. One hybrid would be needed to destroy the waste produced by 10 to 15 LWRs. The process would ultimately reduce the trans-uranic waste from the original fission reactors by up to 99 percent. Burning that waste also produces energy. The CFNS is designed to be no larger than a small room, and much fewer of the devices would be needed compared to other schemes that are being investigated for similar processes. In combination with the substantial decrease in the need for geological storage, the CFNS-enabled waste-destruction system would be much cheaper and faster than other routes, say the scientists.

The CFNS is based on a tokamak, which is a machine with a "magnetic bottle" that is highly successful in confining high temperature (more than 100 million degrees Celsius) fusion plasmas for sufficiently long times. The crucial invention that would pave the way for a CFNS is called the Super X Divertor.

The Super X Divertor is designed to handle the enormous heat and particle fluxes peculiar to compact devices; it would enable the CFNS to safely produce large amounts of neutrons without destroying the system. The intense heat generated in a nuclear fusion device can literally destroy the walls of the machine and that is the thing that has been holding back a highly compact source of nuclear fusion.

The scientists say their Super X Divertor invention has already gained acceptance in the fusion community. Several groups are considering implemented the Super X Divertor on their machines, including the MAST tokamak in the United Kingdom, and the DIIIID (General Atomics) and NSTX (Princeton University) in the U.S. Next steps will include performing extended simulations, transforming the concept into an engineering project, and seeking funding for building a prototype.

For more information, contact: Lee Clippard, College of Natural Sciences, 512-232-0675, lclippard@mail.utexas.edu; Mike Kotschenreuther, 512-471-1322; Swadesh Mahajan, 512-471-4376.

Institute of Soil Degradation Control

There has been a progressive decline in the rate of *per capita* food production in sub-Saharan Africa (SSA) over the past several decades. About 40% of the world's nearly 300 million ha that have become degraded and, hence, agriculturally unproductive are found in Africa. The loss of soil productivity caused by soil degradation and options available to recoup these losses has not adequately been addressed in the East African countries. The great variety in climate, elevation, topography, parent material as well as demographic, cultural and infrastructural conditions are inevitably reflected in an enormous variety of agro-ecological environments and land use patterns. The East African countries need to provide well equipped, appropriately trained and motivated scientists in order to address let alone redress the damage that is currently being done to the land/soils and water (surface and underground) in the region. Land/soil degradation processes have not been studied in the context of agroecological zones (AEZs), agricultural systems, socio-economic circumstances of the farmers in the region and above all a lack of dissemination mechanism of research findings has led to a situation of sever land degradation in SSA.

The lack of sufficient data on land/soil degradation processes in the region inevitably leads to difficulty in developing appropriate measures to prevent degradation. It is emphasized that understanding of land/soil degradation processes in terms of what they are, the mechanisms by which they degrade soil, the magnitude of their degradation with respect to various soils under various AEZs, and relationships between such degradation and agricultural systems are pre-requisites in generating appropriate measures/technologies and formulating beneficial management policies aimed at restoring and/or improving soil productivity. Sustainable soil productivity depends on improvement and maintenance of its productive capacity at desirable levels. To realize this, degradation of land/soil must be prevented. Where degradation has occurred, appropriate measures must be taken to restore the land/soil productive capacity. It is necessary, therefore, for researchers to prioritize degradation processes on the basis of their prevalence and impact, and evaluate them focusing on technical effectiveness, economic benefits, and social suitability and acceptability under various AEZ's in the region. Besides, there needs to be an effective machinery of information generation, refinement, storage, retrieval, and dissemination on matters relating to land/soil degradation management. There is a need, therefore, to establish a regional Institute of Soil Degradation Control (INSODEC) that will conduct research on land/soil degradation control, prepare extension manuals, and train field staff/extension agents on the same.

In view of the importance of land/soil resources as the base of development in agriculture-oriented economies and also in cognizance of the existence of strong relationships between low agricultural production and poverty on the one hand and poverty and chronic food insecurity on the other hand it is proposed that a regional Institute of Soil Degradation Control (INSODEC) be established at Maseno University, Kenya to address problems of land/soil degradation in the eastern African region.

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Issue 5

INSIGHT ON ULTRA-LOW SEDIMENT FLOW PROVIDED BY ARGONAUT-ADV®

LOUISIANA, USA.

Louisiana's coastal wetlands provide vital wildlife habitat and a strong buffer against storms. But they are threatened by subsidence and cut off from the historic floods that built the Mississippi River Delta. Using SonTek Argonaut-ADVs®, a Louisiana State University team captured continuous streams of data on shallow, slow-moving currents (down to 1 mm/s) that are notoriously difficult to measure. Their findings are teaching stakeholders how releases of sediment-rich pulses of water through a diversion structure near New Orleans may be managed to help rebuild marshes while minimizing impacts on local fisheries.

> www.sontek.com/news/UltraLowFlow.pdf



ACOUSTIC DOPPLER TECHNOLOGY ENABLES FAST ASSESSMENT OF POST-QUAKE HYDRAULIC CONDITIONS



SICHUAN PROVINCE, China.

A 7.9 magnitude earthquake in China left millions homeless and susceptible to thirst and water-borne disease as it ravaged the country's hydrology monitoring stations. SonTek/YSI immediately responded with assistance and hydroacoustic equipment — allowing hydrologists to gauge the speed and strength of water flow, as well as monitor drinking water distribution. The advanced RiverSurveyor®



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> www.sontek.com/news/ChinaQuake.pdf

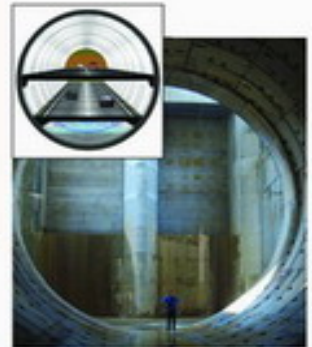
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A SMART WAY TO HANDLE FLOODS

KUALA LUMPUR, Malaysia.

Devastating floods are common in crowded Kuala Lumpur, necessitating the massive Stormwater Management and Road Tunnel (SMART) project. Because accurate and timely information on discharge and velocity are vital for success, 16 SonTek Argonaut-SL and Argonaut-SW current meters were required. Says Bruce Sproule, Greenspan Technology's International Manager, "SonTek equipment...was the easiest and most accurate to incorporate into this project. The support is good and the equipment reliable."

> www.sontek.com/news/SmartTunnel.pdf



The most common and widespread of the world's natural hazards is the flood.

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FEATURES

Soil Carbon Storage Is Not Always Influenced by Tillage Practices

Although moldboard plowing combined with mineral nitrogen fertilization can lead to decreased organic carbon stocks in the soil surface relative to no-till, this effect is cancelled when the whole profile is considered.

The practice of no-till has increased considerably during the past 20 years. Soils under no-till usually host a more abundant and diverse biota and are less prone to erosion, water loss, and structural breakdown than tilled soils. Their organic matter content is also often increased and consequently, no-till is proposed as a measure to mitigate the increase in atmospheric carbon dioxide concentration. However, recent studies show that the effect of no-till on carbon sequestration can be variable depending on soil and climatic conditions, and nutrient management practices.

Researchers at Agriculture and Agri-Food Canada (Québec City) investigated the impacts of tillage (no-till vs. moldboard plowing) and nitrogen and phosphorus fertilization on carbon storage in a clay loam soil under cool and humid conditions in eastern Canada. Corn and soybeans had been grown in a yearly rotation for 14 years. The results of the study were reported in the 2009 January-February issue of the *Soil Science Society of America Journal*.

The authors concluded that their investigation indicates "...no-till enhanced soil organic carbon (SOC) content in the soil surface layer, but moldboard plowing resulted in greater SOC content near the bottom of the plow layer. When the entire soil profile (0-60 cm) was considered, both effects compensated each other which resulted in statistically equivalent SOC stocks for both tillage practices."

The effects of tillage and nitrogen fertilization varied depending on the soil depth considered. When considering only the top 20 cm of soil, the lowest carbon stocks were measured in the plowed soil with the highest nitrogen fertilizer level, whereas the highest SOC stocks were observed in the no-till treatment with the highest nitrogen rate. The authors hypothesized that while nitrogen fertilization favored a greater residue accumulation in the top 20 cm of no-till soils, mixing of crop residue with soil particles and nitrogen fertilizer by tillage stimulated the mineralization of residue and native soil carbon. However, when accounting for the whole soil profile, these variations in the surface 20 cm of soil were counterbalanced by significant SOC accumulation in the 20- to 30-cm soil layer of tilled soils, resulting in statistically equivalent SOC stocks for all tillage and nitrogen treatments. This study further emphasizes the importance of taking into account the whole soil profile when determining management effects on SOC storage, especially when full-inversion tillage is involved. The authors conclude that "only considering the top 20 cm of soil would have led us to an erroneous evaluation of the interactive effects of tillage and nitrogen fertilization on SOC stock".

Field studies of the impact of tillage and fertilization on carbon storage have yielded contrasting results in various parts of the world. An explanation of the high intersite variability of the influence of no-till on soil carbon storage will require that we understand the impacts of no-till and fertilizer management on SOC sequestration for various soil and climatic conditions. Further, researchers at Agriculture and Agri-Food Canada are pursuing their investigations to understand the factors that control the accumulation of soil carbon at depth under moldboard plowing. Specifically, they now focus their efforts on the role of clay particles and soil aggregation in stabilizing carbon.

View the abstract at <http://soil.scijournals.org/cgi/content/abstract/73/1/255>.

Contact: Sara Uttech, Soil Science Society of America, 608-268-4948, suttech@soils.org

Renewable Energies: The fuels that *must* take over the world (Dave Canavan, davidc@gardenbangkok.com)

As the term 'non-renewable' means fossil fuels are going to run out, 'renewable' means the opposite; fuels that will never run out. These renewable fuels are all around us although it is a case of how to

harness their energy. Essentially, all a fuel is, is a source of energy. In fossil fuels it is the stored organic remains of dead plants and animals, whereas the energies that we encounter everyday are not necessarily stored, they just need to be utilized.

There are so many forms of energy the Earth has to offer. It has to be a matter of time before they are the dominating source of energy for our energy needs. Renewable energies include wind power, wave power, tidal power, hydroelectric power, geothermal power, solar power, biomass and many more, but it is how we harness them that is the useful factor. Bear in mind though, that these energies are not without fault.

Wind Power

Wind power is where the kinetic energy of the wind is converted into electrical energy. Turbines are erected in places that are naturally windy, and the wind blows and turns the blades. These blades turn, which turns gears that turn a generator. This generator generates electricity which then passes through the transformer to be converted and sent to pylons and then to homes. There is no pollution so this sounds great. But there are problems.

Wind turbines are massive, often over 70metres tall without the blades. They obviously need to be built in areas of high wind which mainly concerns areas of outstanding natural beauty, such as the coast or on mountains. There is also evidence to suggest that the turbines interfere with migrating birds. Their main downfall though is their inefficiency in electrical production. For wind turbines alone to produce electricity for cities, the area they would need is enormous, therefore making it unrealistic for wind to be a city's only source of electrical production.

One solution that is proving popular is offshore wind turbines. These are wind turbines that are placed in shallow waters off the coastline. These are proving more popular and are a great idea, although maintenance can be a problem with them being out at sea.

Hydroelectricity

This is where the gravitational potential energy of water in a dam can be converted into kinetic energy when the dam is opened, which is then converted into electrical energy. As the water runs down a passage called a penstock it turns a turbine (similar to a pinwheel that turns with the air) which is connected to an electrical generator. This generator, as with most generators, uses an electromagnet that converts the kinetic (movement) energy from the turbine into the kinetic energy of a spinning magnet surrounded by coils of wire which produces electricity, which then gets transferred to pylons and taken to homes.

As there is no burning of fuels, carbon dioxide, the greenhouse gas, is not produced but hydroelectricity is not without its problems. It can only be used in mountainous areas and it may seriously impact on the immediate environment by affecting water quality, water temperature and habitat destruction. Saying that, they are one of the most popular renewable energies used in the world to produce electricity.

Geothermal Energy

This is where the heat within the Earth is used to heat water. As you can see if you observe a volcano, there is a lot of heat under the Earth's crust. If pipes are run down to this heat, the water can come back up extremely hot. This water is converted to steam which then travels to steam turbines which then turn generators and produce electricity.

They work on the exact same principle as coal power stations that heat water to produce steam to produce electricity, but there is no burning involved, and therefore, carbon dioxide emissions are limited. The drawback is that geothermal energy is not an available resource in many places as there is not enough heat at suitable depths. And although they are renewable, the geothermal areas can cool down over time.

Tidal Power

As the name suggests, this is harnessing the energy of the tides. Tides happen twice a day and are extremely predictable. The times of high and low tide are known for years to come and their power is immense. This makes tidal power extremely reliable and consistent, much more so than wind or solar power. Tidal power relies on the kinetic energy of the flooding and ebbing tidal water to pass over turbines, which turn generators that produce electricity. As water is a lot denser than air, the efficiency of tidal turbines is many times greater than wind turbines. They are very efficient in their electrical production, but they do not make up a significant contribution to the world's electricity production. This may be due to them being expensive to install although their ecological impact may also be a factor. Coastal ecology is often delicate and very sensitive to change in salinity, water flow, oxygen levels and pollutants, and therefore tidal turbines may not be favorable for many places.

These are just a few of the renewable energies we have developed so far. Next week we will look at biomass, wave power, solar power, and my favourite, hydrogen fuel cells. For now, consider what options Thailand has in the way of renewable energy. Bangkok can hardly rely on hydroelectric power, but up north, being mountainous, I'm sure they could. Chonburi has already got wind turbines, but what of Bangkok? It may be a little far inland for tidal and not suitable for geothermal so maybe next week we will have the answers.

SUMMARY REPORTS

4th World Congress on Conservation Agriculture, New Delhi

The 4th World Congress on Conservation Agriculture is organized jointly by the Indian Council of Agricultural Research (ICAR) and National Academy of Agricultural Sciences during Feb 4-7, 2009 at NASC Complex, New Delhi. More than 800 delegates representing scientific community, policy advisors, farmers' organizations, corporate leaders and non-governmental organizations from different parts of the world are participating in the congress. Delegates are from all the continents and represent more than 40 countries, including developing and developed countries.

The fourth World Congress on Conservation Agriculture, deliberated on the issues vital for sustaining high growth agriculture without clashing with the environment based on the theme "Innovations for improving Efficiency, Equity and Environment". The major objectives of the Congress included the exploration of the future global partnerships and policy initiatives, and developing a road map with broad sets of strategies and actions to promote conservation agriculture practices and technologies. The meeting was hosted by Indian Council of Agricultural Research (ICAR), New Delhi; National Academy of Agricultural Sciences (NAAS), New Delhi and FAO along with International Fund for Agriculture Development (IFAD) and other Indian and international organizations being sponsors and co-organizers including WASWAC. The Congress aimed at bringing together stakeholders, researchers,



farmers, extension workers, policy planners, corporate leaders and non-governmental organizations to address innovations in agriculture to realize improved efficiency, equity and environment. Nearly 1,000 delegates from 48 countries participated in the Congress.

The Congress was formally inaugurated by Mr. Sharad Pawar, Minister of Agriculture, Government of India. In his inaugural address, concerned about the global challenges posed demands of burgeoning population, decline in global food markets and

high prices of food commodities due to numerous constraints including deteriorating production environment and Global warming. Prof. M.S. Swaminathan, eminent Agriculture Scientist, emphasized the role of conservation agriculture in alleviating poverty and hunger. He regarded conservation farming as an attitudinal change towards natural resources to increase the productivity, especially of small farms, on a perpetual basis without harming the ecological balance. He appreciated the efforts made for organizing the Congress. Dr. Mangla Rai, DG ICAR and Chairman, Congress Committee, stressed on the need for an intelligence system that would provide inputs on production of essential commodities while increasing pest surveillance and enhancing climate literacy. He stated that agriculture sector would continue to be a losing proposition, unless there large investment is committed to water management and technology adoption for mitigating the impact of climate change. Dr. Rodney Cook, Director, Technical Advisory Division, IFAD, elaborated on the role of IFAD as a specialized agency to enable poverty reduction that requires long term solutions such as greater investment in small holder farms and building on capacity of rural farmers through favourable policies.



The plenary sessions were marked by key paper presentations from the experts from the organizations involved in conservation agriculture. The first plenary session was chaired by Prof. M.S. Swaminathan and included presentation from Dr. Mangla Rai, DG, ICAR, New Delhi; Dr. Katherine Sierra, Vice President, The World Bank. Dr. Mangla Rai, elaborated on the role of Conservation Agriculture in improving the efficiency, equity and environment in the Indian perspective. He emphasized that when resources and inputs are used inefficiently, both costs of cultivation and threat of biosphere pollution increases, resulting in decrease in production. Available estimates indicate that 10% increase in water use efficiency can help the country gain more than 50 million tones of food grains from the existing irrigated area. He noted that the time has come to infuse new technologies for further enhancing and sustaining productivity. Dr. Katherine Sierra, deliberated on improving equity and environment through conservation agriculture. She highlighted the programmes of World Bank where conservation agriculture is encouraged. She considered CA as an important tool for improving the equity and environment in the present situation.

The Plenary session II was chaired by Dr. R.S. Paroda, President, Trust for Advancement of Agricultural Sciences. During the session 5 presentations were made. Dr. Mahmoud Solh, DG, ICARDA, looked at the scope for improving equity and livelihood security through Conservation Agriculture. He referred to FAO studies indicating that 80% of the increase in future food production up to 2030 will have to come from intensification of production systems through increase in productivity per unit area. This will be

detrimental to natural resources and environment if intensification is not practiced in sustainable manner. Globally, the trend will be towards expanding conservation technologies to develop improved sustainable production systems. Dr. Thomas A. Lumpkin, DG, CIMMYT regarded Conservation Agriculture as the means of enhancing resource productivity and efficiency. He noted that CA should be brought into the mainstream of crop management research and be closely linked with crop breeders and other agricultural disciplines to ensure the development of tactical management practices suited for CA based crop management technologies.

Dr. Paul Vlek, ZEF, University of Bonn, stressed on the need of CA to address issues of reduced land productivity, land degradation and reduction in biodiversity. He pointed out that CA has shown to improve, conserve and use natural resources in a more efficient way through integrated management of soil, water and biological resources. Dr. Y.L. Nene, Asian Agri-History Foundation, highlighted the traditional Indian literature on agriculture where many aspects of CA was used included management of soil, water, crop diversity, animals, storage of produce and maintenance of tools, implements and machinery. Dr. Dennis Garrity, DG, ICRAF, drew attention of CA and agro-forestry in the context of environmental change. He reiterated that the Congress had come at a critical moment when the global debate on climate change agreement was being taken up actively. The potential role of incorporating trees in the agricultural systems to enhance CA is also now widely appreciated through the dedicated efforts of many scientists who have investigated the possibilities of agroforestry. He emphasized the need to increase tree cultivation in agriculture in practical ways that would make good sense on the farm, particularly in small holder agriculture.

Plenary session III was chaired by Dr. R.B. Singh, Former ADG, FAO and had three broad presentation that addressed the relevance of water use efficiency, global partnership and need for assessment of conservation agriculture. The deliberations were made by Dr. Colin Chartres, DG, IWMI, Dr. R.S. Paroda and Dr. S.S. Johl.

These plenary sessions were followed by the technical sessions for the remaining three days of Congress that focused on the four main themes: (i) Resource productivity and efficiency, (ii) Institutional innovations and policies, (iii) Environment, and (iv) Impact assessment and equity issues. The deliberations on these themes were made through presentations, discussion and poster displays. The details of the presentations and abstracts can be seen on www.wccagri.ernet.in



WATER SUMMIT

Three days programme on “WATER SUMMIT” was held at College of Technology, G B Pant University of Agriculture and Technology, Pantnagar, Uttarakhand, India during Feb 19-21, 2009. Water is the basis for the survival of all living organisms-both human and natural resources are dependent on water. It is the primary requirement for human beings as also for their socio economic development and the survival of a healthy ecosystem. In addition, access to water plays a vital role in food security and poverty alleviation. A mountainous

state Uttarakhand rich in natural resources like water and known for many glaciers and lakes and also many rivers originate/run from this small state.

Reduction in per capita availability of water owing to population growth, depleting ground water table, deteriorating water quality scenario in the developing world was discussed during the summit. Experts touched upon the advanced topics, which include but not limited to Climate Change Impacts on Hydrology and Water Resources, Optimum utilization of water resources, Soft computing applications in water resources, Flood and Drought Management, Urban Water management, Hydro Power,

MISCELLANEOUS

A SUGGESTION

Weep Holes may be provided at the bottom of the Open RCC/Brick drains in all the cities of the country, so that water flowing in the drains may penetrate into the ground through the Weep Holes provided. It will help in (1) Increasing the underground water level; (2) Reducing river pollution as it would lessen the amount of polluted water which would flow into the rivers; (3) Controlling Mosquito population (as most of the people through their garbage directly into the drains thus causing stagnation of the flow which results in increase of mosquito population); and (4) Increasing the Moisture Content in the surrounding region thus flourishing growth of plants.

Vimal Arora (vimalarora1955@gmail.com), India

COMPUTIPS

▲ Want to stop Junk/Spam e-mails?

Blocking email messages from a particular country is a new feature in Windows Mail. Previously, in Outlook Express you could not block an entire country from sending you spam emails. This is a fantastic feature that really helps stop spam and junk email coming into your inbox. I personally can't believe how well it works.

▲ How to find out what country the spam email is coming from?

A website or an email from a particular country usually has a specific code. For example an email address from Australia can have .com.au on the end and so can a website from Australia. If an email was from Canada it would have .ca on the end.

Some more examples are UK - United Kingdom, ZA - South Africa, TH - Thailand, RU - Russian Federation, IN-India and more... Unfortunately this is not a clear cut answer because there are also hotmail.com and other email addresses that are available to any country but it can still help.

▲ How to block email messages from a particular country to control spam?

1. Open Windows Mail
2. Go to the tools menu and choose Junk E-mail options..
3. The *Junk e-mail Options* will open
4. Press on the button that says *Blocked Top-Level Domain List*
5. Now **tick the box** next to any country that you wish to block messages from.
6. You can choose to **select all** and then untick the ones you want to allow.
7. This is the easiest way for me because all of my email message I receive are from Australia, the UK, and the USA and Canada. Therefore I only have to **untick these ones**.

This is the ultimate control in stopping spam email reaching your inbox.

▲ How to recover corrupted PowerPoint file using TEMP folder?

Today tip will help you to recover the unreadable and corrupted file of Microsoft PowerPoint. Normally PowerPoint open files can become corrupted when you are trying to save it or if you were working on it and your PowerPoint application or windows crashed due to power failure. Windows saves a duplicate copy of working file as a temporary version. There is no need to use any third party software to manage these types of corrupted files, because you can recover them from TEMP folder.

Follow the given steps to recover the corrupted files in MS PowerPoint:

First click on **Start** button then click on **Search** option to start your search process.

Here type the ***.TMP** in "All or part of the file name" box then choose the "Local Hard Drives" option in "Look in" box.

▲ Computer cleaning Tips

Below is a listing of general tips that should be taken when cleaning any of the components or peripherals of a computer as well as tips to help keep a computer clean.

1. Never spray or squirt any type of liquid onto any computer component. If a spray is needed, spray the liquid onto a cloth and then use that cloth to rub down the component.
2. Users can use a vacuum to suck up dirt, dust, or hair around their computer on the outside case and on their keyboards. However, **do not** use a vacuum for the inside of your computer as it generates a lot of static electricity that can damage the internal components of your computer. If you need to use a vacuum to clean the inside of your computer, use a portable battery powered vacuum designed to do this job.
3. When cleaning a component and/or the computer, turn it off before cleaning.
4. Never get any component inside the computer or any other circuit board damp or wet.
5. Be cautious when using any type of cleaning solvents; some individuals may have allergic reactions to chemicals in cleaning solvents and some solvents can even damage the case. Try to always use water or a highly diluted solvent.
6. When cleaning, be careful not to accidentally adjust any knobs or controls. In addition, when cleaning the back of the computer, if anything is plugged in, make sure not to disconnect any of the plugs.
7. When cleaning fans, especially the smaller fans within a portable computer or laptop it's suggested that you either hold the fan or place something in-between the fan blades to prevent it from spinning. Spraying compressed air into a fan or cleaning a fan with a vacuum may cause damage to some fans or in some cases cause back voltage.
8. Never eat or drink around the computer.
9. Limit smoking around the computer.

LAUGHTER ZONE

JUST TO LAUGH

▲ A resident in a posh hotel breakfast room called over the head waiter one morning and read from the menu. "I'd like one under-cooked egg so that it's runny, and one over-cooked egg so that it's tough and hard to eat. I'd also like grilled bacon which is a bit on the cold side, burnt toast, butter straight from the freezer so that it's impossible to spread, and a pot of very weak, lukewarm coffee." "That's a complicated order sir," said the bewildered waiter. "It might be quite difficult." The guest replied sarcastically, "It can't be that difficult because that's exactly what you brought me yesterday!"

▲ A woman has twins, and gives them up for adoption. One of them goes to a family in Egypt and is named "Amal." The other goes to a family in Spain; they name him "Juan". Years later, Juan sends a picture of himself to his mum. Upon receiving the picture, she tells her husband that she wishes she also had a picture of Amal. Her husband responds, "But they are twins. If you've seen Juan, you've seen Amal."

▲ Reaching the end of a job interview, the Human Resources Person asked a young Engineer fresh out of Texas A&M, "And what starting salary were you looking for?" The Engineer said, "In the neighbourhood of \$125,000 a year, depending on the benefits package." The interviewer said, "Well, what would you say to a package of 5 weeks vacation, 14 paid holidays, full medical and dental, a company matching retirement fund for 50% of your salary, and a company car leased every 2 years -- say, a red Corvette?" The Engineer sat up straight and said, "Wow! Are you kidding?" And the interviewer replied, "Yeah, but you started it."

▲ Resolving to surprise her husband, an executive's wife stopped by his office. She found him with his secretary sitting in his lap. Without hesitating, he dictated, "...and in conclusion, gentlemen, shortage or no shortage, I cannot continue to operate this office with just one chair."

▲ A lady bought a new \$100,000 Mercedes and proudly drove it off the showroom floor to take home. Halfway home, she attempted to change radio stations and saw that there appeared to be only one station. She immediately turned around and headed back to the dealer.

Once at the dealer, she found her salesman and began to excitedly explain that her radio was not working, and they must replace it since she only had one radio station. The salesman calmed her down and told her that her car radio was voice-activated, and that she would only need to state aloud the type of music that she wanted and the car would find it.

She got into the car and started the engine and then said the word "country," and the radio changed to a station playing a George Strait song. She was satisfied and started home. After a while she decided to try out the radio and said "rock 'n' roll;" the radio station changed and a song by the Rolling Stones came from the speakers. Quite pleased, the woman continued driving.

A few blocks from her house, another driver ran a light causing her to slam on her brakes to avoid a collision. The woman angrily exclaimed, "Asshole!"

...The radio cut over to George Bush's press conference.

▲ Top Ten Signs You Are Addicted to the Internet

1. You kiss your girlfriend's/boyfriend's home page.
2. Your bookmark takes 15 minutes to scroll from top to bottom.
3. Your eyeglasses have a web site burned in on them.
4. You find yourself brainstorming for new subjects to search.
5. You refuse to go to a vacation spot with no electricity and no phone lines.
6. You finally do take that vacation, but only after buying a cellular-modem and a laptop.
7. You spend half of the plane trip with your laptop on your lap... and your child in the overhead compartment.
8. All you daydreaming is preoccupied with getting a faster connection to the net: 28.8... ISDN... cable modem... T1... T3...
9. And even your night dreams are in HTML.
10. You find yourself typing ".com" after every period when using a word processor.com.

WASWC members are requested to send news about anything concerning SWC, e.g. funds, awards, publications, websites, exhibitions, technical meetings, to publish with us by sending to sskukal@rediffmail.com, aroraspau@yahoo.co.in, and rmfowler@iafrica.com

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Syngenta is a leading agribusiness committed to stewardship and sustainable agriculture through innovative research and technology. We develop technologies to drive the environmental, economic and social sustainability of agricultural systems.

Syngenta is committed to supporting the concepts of conservation agriculture and works with partners and stakeholders worldwide on many projects to enhance soil and water quality.

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1. Individual membership: US\$5/yr for developing countries; US\$10 for developed countries and persons working in international organizations worldwide. **Incentive rate:** *Payment of the fee for 4 years at the same time will make membership valid for 5 years.*

2. Life membership: US\$80 for developing countries; US\$160 for developed countries and persons working in international organizations worldwide.

3-1. Organization membership (OM): For universities, research and implemental institutions, government agencies, NGOs, societies, associations and international organizations, etc. Persons belonging to an Organization member will receive the same online products and services as the other two above categories: \$100/ yr for an organization with up to 150 persons; \$150/ yr for an organization with up to 300 persons; \$200/ yr for an organization with up to 500 persons; and \$10/ yr for an additional 100 persons or part thereof. Local organizations in developing countries can request to pay at a lower rate.

3-2. Organization subscription (OS): is the same as the **Organization membership** but the organization wants to limit its involvement only as a **subscriber**.

3-3. Organization cooperation (OC): is the same as the **Organization membership** but the organization wants to limit its involvement only as a **cooperator**, without paying a fee. Any organization can be a cooperator for 1-2 years before deciding to join as OM or OS if desired.

4. Gift membership: US\$5/ yr worldwide, to be purchased by anyone to give to colleagues, friends, students, etc.

You may ask sombatpanit@yahoo.com about your membership status, i.e. up to what year you have paid. Then you may send the fee to either John Laflen or Samran Sombatpanit or any other 'convenient' address in the following list:

a. Dr. John M. Laflen, Treasurer, 5784 hwy 9, Buffalo Center, IA 50424 U.S.A. Phone: +1-641-561-2324. Fax: +1-641-584-2265 Attn: J.M. Laflen. laflen@wctatel.net. He can receive money from US and Canadian members through Personal Check, Money Order, or Bank Draft (payable to WASWC), and can receive VISA and MasterCard credit cards and Bank Draft (payable to WASWC) from all over the world. For sending money through a bank, please give the following information to your bank:

- **Foreign wires:** United Bankers Bank, 1650 West 82nd Street, Bloomington, MN 55431, U.S.A. Routing number 091 001 322; Swift Code UBBKUS41; for benefit of First National Bank of Volga; account number 091 402 552; further credit World Soil #703-488.

- **Domestic wires:** United Bankers Bank, 1650 West 82nd Street, Bloomington, MN 55431, Routing number 091 001 322; for benefit of First National Bank of Volga; account number 091 402 552; further credit World Soil #703-488.

b-1. Dr. Samran Sombatpanit, WASWC Immediate Past President, 67/141 Amonphant 9, Soi Sena 1, Bangkok 10230, Thailand. You can send money to him through the **Western Union worldwide money transfer service** that has over 30,000 offices worldwide (www.westernunion.com). Their service is immediate and the fee is reasonable. Please inform sombatpanit@yahoo.com to show your intention before sending.

b-2. Dr. Samran Sombatpanit, WASWC Immediate Past President, 67/141 Amonphant 9, Soi Sena 1, Bangkok 10230, Thailand. Phone/Fax: +66-25703641, sombatpanit@yahoo.com. He accepts Bank Draft from every country. **Mark the draft "payable to Dr. Samran Sombatpanit"**. He receives SWIFT through the Bangkok Bank, Bangkok Branch, 2124 Phaholyothin Road, Jatujak, Bangkok 10900, Thailand. Phone: +66-25614091/ 25791146-8, Fax: +66-25791149. SWIFT CODE: BKKBTHBK, A/C No. 161-0-210864, which you should also indicate "payable to Dr. Samran Sombatpanit".

IMPORTANT NOTES: 1. DO NOT write the word 'WASWC' in your remittance document, as it will cause a problem, since this is an alternative account that supplements the official one (a, as above). 2. Do not deduct the bank fee from your side from the amount of money to send. 3. For sending money by wire/bank transfer or check please add US\$8 per transaction to compensate for the charge at the receiving bank in Bangkok. This additional charge is NOT applicable for the payment of membership fee(s) of US\$50 or more.

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United Kingdom: Dr. Mike A. Fullen, School of Applied Sciences, University of Wolverhampton, Wolverhampton WV1 1SB, U.K. Phone: +44-1902-322410, Fax: +44-1902-322680, M.Fullen@wlv.ac.uk. He can receive money from within the UK in pound sterling equivalent to the rates stated above. Cheques should be made payable to the University of Wolverhampton. You may use the most recent exchange rate for converting US\$ into GBP.

Note: For the convenience of all parties you are advised to sign up as a Life member or to pay the Incentive rate (e.g. pay 4 years and get a 5-year membership). Contact sombatpanit@yahoo.com if you have any problem.