



NEWSLETTER

Reporting global SWC news to you quarterly since 1983

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

Volume 22, Number 3

July – September 2006

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Publishing Partner: Science Publisher, Inc., P.O. 699 Enfield, NH
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WASWC Vision: A world in which all soil and water resources are used in a productive, sustainable and ecologically sound manner.

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.

Conserving soil and water worldwide – join WASWC

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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 sombatpanit@yahoo.com.

PRESIDENTS MESSAGE

Miodrag Zlatic

Students' Forum



During my Presidency there will be devolution of shared responsibility with other WASWC Officers. One task is to strengthen the WASWC Decentralization Program (DP), in which Serbia was the first country to participate. I encourage younger generations to establish a 'WASWC Students' Forum' on the DP decentralization principle. An example is the WASWC Students' Forum established at the Faculty of Forestry, Belgrade University on June 27, 2005. This Forum was initiated by Prof. Dr. Miodrag Zlatic (WASWC President), supported by Prof. Dr. Ratko Kadovic (Dean of Faculty), Prof. Dr. Stanimir Kostadinov (Head of the Erosion and Torrent Control Department) and Assoc. Prof. Dr. Nada Dragovic. The initiative was enthusiastically welcomed by both academics and students.

This is the first and experimental year of the program. The proposed constitution includes management protocols (i.e. the name, place, aims, activities, registration of new members, obligations, membership, Assembly, Council, Supervisory Board and procedure of meetings). In brief, the Forum aims to:

- Advance field and laboratory training in SWC
- Raise sustainable land management (SLM) awareness in theory and practice
- Promote SWC approaches
- Disseminate WASWC ideas to students and strengthen membership
- Help and support the establishment of similar fora in The Balkans and beyond
- Organize students' meetings, seminars, excursions and publications.

Currently, the Forum has 23 student members. The Administrative Office is at the Faculty of Forestry, Belgrade University (Tel.: 00 381 11 3553 122; Fax: 00 381 11 2545 485). A web-page will be established soon.

At the meeting on June 27, 2005, there was election of officers as follows:

- * Forum President: Ivana Nikolic (right photo).
- * Deputy President: Senka Skundric.
- * Secretary: Sonja Jurisic.



To realize these aims, Forum members are involved in WASWC activities (e.g. the WOCAT Program, Community Based Rehabilitation of Degraded Land in The Balkans Project) and research activities of the Erosion Control Department. Forum progress will be reported in the Newsletter.

From establishment to present, the Forum has engaged in several activities:

1. Samran Sombatpanit (then Acting President of WASWC) and Rinda van der Merwe (National Representative – NR – of WASWC for South Africa) visited Serbia and gave lectures to the Forum on September 12, 2005, regarding WASWC global activities and SWC in South Africa, respectively. (Group photo in front of the Forestry Faculty, Belgrade University, Belgrade, Serbia)



2. Forum President Nikolic Ivana, Prof. Miodrag Zlatic and Prof. Nada Dragovic, visited the Forestry Faculty in Skopje, Macedonia, to promote establishing a similar Forum. There is continued dialogue between the Belgrade and Skopje Fora.

3. Jelena Maric, Forum member, participated in the 'Community Based Rehabilitation of Degraded Land in the Balkans' workshop, held in Belgrade University from January 27-28, 2006. The Forum will be involved in project activities and will be financed by the 'Global Environment Facility' (GEF).

4. The Forum is involved in the WOCAT Program, where Jelena Maric worked on questionnaires for Technologies (QTs) in Slanci Village, one of the best places for vegetable production for Belgrade.

5. In May 2006 the Forum organized a photographic exhibition in Belgrade University on the immense floods and landslides that occurred in Serbia in Spring 2006. The exhibition attracted many visitors, including students, professors and erosion experts.

6. During the Conference 'Preventing and Fighting Hydrological Disasters' in Timișoara, Romania (June 29-July 1, 2006), led by Prof. Gheorghe Cretu, a good relationship was established with professors and students of the Hydrotechnical Faculty, where there is a strong possibility to establish a Students' Forum.

7. During the preparation of the Regional Project 'Community Based Rehabilitation of Degraded Land in Balkan Countries' at the meetings in Belgrade (January 2006) and in Istanbul (September 2006), the issue of Students' Forum for Turkey was discussed and Sevilya Haciyakupoglu, WASWC Turkish NR, showed her keen interest in it.

The basic aim of these fora is to encourage young members, who will become future experts in SWC and ambassadors of the WASWC ethos. I hope and believe that this 'Balkan model' initiative will be adopted and adapted globally.

EDITOR'S NOTES

Samran Sombatpanit

ISCO Conference in Marrakech, Morocco

The 14th ISCO (International Soil Conservation Organization) Conference opened in the Convention Center (photo below) of the beautiful city of Marrakech, Morocco, on May 15, 2006, under the chairmanship of the 14th ISCO President, Prof. Mohamed Sabir (WASWC Councilor for Africa – photo at right). The opening speech was given by Prof. Samir El-Swaify (WASWC VP for the Pacific), a founding member of the ISCO Board (<http://tucson.ars.ag.gov/isco/isco14/opening.htm>). This was the first time an ISCO conference took place in this part of Africa since the 6th conference in Kenya and Ethiopia in 1989. It attracted participants mainly from Africa (more from the northern part), Middle East, Europe and North America. A few came from Asia and other regions. Altogether, approximately 300 persons from more than 50 countries participated.



Undoubtedly, the theme of the conference, "Water Management and Soil Conservation in Semi-Arid Environments", suited the situation of the world today very well. A direct consequence of the rapid population growth in the second half of the last century has been the exploitation of land and water resources. With present day consumerism of various natural resources, it has led to rapid degradation of land based resources and even gone beyond this to cause climate change, the effect of which will be felt most strongly by generations to come.



The conference program started with the opening ceremony in the main auditorium. As this ISCO also planned to commemorate the International Year of Deserts and Desertification (which falls in 2006), we got to hear a speech by Dr. Grégoire de Kalbermatten, Deputy Executive Secretary of the United Nations Convention to Combat Desertification (UNCCD, with an office in Bonn, Germany – photo at left – upper). He gave an interesting presentation on the roles of his organization in collaborating with many agencies in combating desertification through soil and water conservation and other means. He also looked at the prospect of working together with certain participants who attended the conference. After several dignitaries – foreign and local – gave speeches of appreciation, Dr. Ian Hannam (WASWC Councilor for Australia – photo at left, lower), as an IUCN member, gave an overall keynote address on "Progress in the development of national and international legal frameworks for the conservation and sustainable use of soil." Then the concurrent technical sessions went to four rooms for the rest of the conference period until the closing session, when everyone came back to the main auditorium again. There, among several conference functions, I presented my talk on "WASWC – where are we now", and awarded the Norman Hudson Memorial Award to John C. Greenfield's representative and also the Honorary Membership Award to Prof. Mohamed Sabir.



According to Prof. Ildefonso Pla Sentis (WASWC VP for South America), the approximately 250 technical papers presented (ca. 200 oral, 50 posters) can be classified into four general topics as follows:

- 1) Evolution of soil and water degradation problems in different parts of the world (15% of the presentations);
- 2) Causes, effects and evaluation systems of soil and water degradation processes (50%);

- 3) Tests and adoption of new soil and water conservation systems and practices in lands with different and changing use and management (25%); and
 4) Social-economic and legal aspects, including the role of public and private organizations and conventions at different levels, in the study, adoption and application of sustainable practices and systems of soil and water conservation at local, national and regional levels (10%).

The overall conference impressions can be read from <http://tucson.ars.ag.gov/isco/isco14/report.htm> and the whole proceedings are downloadable from <http://www.tucson.ars.ag.gov/isco/page3.html>. It was agreed at the Board meeting that the 15th ISCO will take place in Budapest, Hungary, in May 2008, under the Presidentship of Prof. Ádám Kertész.



The conference organizers arranged the excursions quite nicely, with one pre- and post-conference tour, as well as several mid-conference tours on May 17, 2006. I joined mid-conference tour No. 3 on Biodiversity and Land Degradation in the High Atlas Mountains. The tour went south from Marrakech (aka 'Pearl of the South' – above left photo) to Al Haouz plain (500 m asl), and continued to Amassine foothills (920 m), Sidi Ali Ou Fares Middle Mountain Range (1,700 m) and concluded at the High Mountain of Oukaïmden region (2,600 m), which is the highest ski resort in Africa, from where we could see the highest peak of the Atlas Mountains at 4,165 m. We learned about the change of plant associations from arid to semi-arid plants (such as *Zyziphus lotus* and *Acacia gummifera*) to high mountain associations of xerophytes and *Juniperus thuriferae* and all the associations in between.

Scenes of streams and farms on high altitude sloping land were quite stunning (2nd photo from left) all the way up until we were in the Oukaïmden region where only nomadic pastoralism was practiced (3rd photo from left – showing temporary dwelling places of pastoralists). The last photo shows the participants resting at the last and highest spot of the day (between 2,600–2,700 m).

(Concerning the tour guidebook, I recommend that the organizers of the next and future conferences include information about all of the mid-conference tours together in the same book, so that participants who attend one tour will have a glimpse of what was seen on the other tours. This was not the case with the 14th ISCO.)

You are welcome to view photos from the 14th ISCO Conference in Marrakech as well as photos of other places and cities in Morocco on the website <http://community.webshots.com/user/waswc1/1>.

WASWC Forum: Since there are usually several WASWC members attending ISCO conferences, our association – with kind cooperation of the organizers – will organize a WASWC Forum at each of the conferences, with the purpose to exchange ideas to proliferate our mission. The WASWC Forum held during the 14th ISCO only attracted 10 people, which was due to certain factors and we will try to improve numbers for the next times. The Forum ran for over one hour in the evening of May 15 and generated discussion and suggestions as follows:

[Participants: Samir El-Swaify, Ildefonso Pla Sentis, Josef Rosner, Mohamed Sabir, José Rubio, Mike Grundy, Pham Quang Ha, Ádám Kertész, Miodrag Zlatic and Samran Sombatpanit]

At this Forum only one major idea was offered, which was the same as had been suggested at previous forums: the WASWC should organize conferences with a theme that is of concern, which would allow WASWC members to have some physical touch rather than what we have been using presently, the internet. Those who offered the idea, Samir El-Swaify and Ildefonso Pla Sentis, voiced their experience from the golden time of WASWC (1987-1991) when a conference on sloping land was held successfully in Puerto Rico (USA), Taiwan and Solo (Indonesia), with the cooperation of the Soil and Water Conservation Society (SWCS)—with three nice volumes of proceedings that still exist as a testament of our activities in those times on the bookshelf of many professionals and academics today.

There was general agreement that such an activity should be done whenever possible. I have had experience in organizing several conferences in the past (long before I was involved in the 5th ISCO in Bangkok in 1988) so I fully agree with this general thought. However, we need to obtain money in the form of sponsorship from some donors to achieve this. We cannot simply run a conference expecting that the registration fees will cover all of our costs, as we need to sponsor a good number of developing country participants to make the outcomes from the conference applicable. So this point is important and I would like to pass on to successive WASWC Councils that this should be done whenever there is an enabling environment. But at present we should do our best, in whatever we can do, to offer our worldwide members as many benefits as possible. We appreciate the time and thoughts of those who came to attend this small forum.

Apart from that we discussed about how to strengthen/ empower the works of WASWC Secretariat, presently spreading in several Asian cities, i.e. Beijing (main office), Tokyo, Bangkok, and later will expand to some other

cities too, as the workload is increasing rapidly. However, according to the fact that we are operating with a global mandate, with highly different economic levels, it is inevitable that we have to handle our secretariat's works relatively strictly in line with the keywords that we have recently concluded: volunteerism, internet, quality, innovation, institutional support and affordable to all. We realize that there are many people around who are willing to help, especially when asked. So this form of secretariat, which is different from other societies as we depend almost entirely on volunteers, would be functional for us as long as WASWC exists, and vice versa.

Presentation of Norman Hudson Memorial Award for 2006 at the 14th ISCO Conference

Vetiver System Developer, Mr. John C. Greenfield of New Zealand (photo at right), was



presented with the distinguished Soil and Water Conservation Award (the Norman Hudson Memorial Award) at the 14th ISCO Conference in Marrakech, Morocco. Since traveling across the globe posed a problem for John, his stand-in, Dr. Criss Juliard, who has been working in Morocco as a representative of The Vetiver Network, received the award on John's behalf. The award ceremony took place at the closing session of the Conference. In the picture at left, Criss, on the right, receives the Norman Hudson Award plaque from Mr. Said Abdelah, regional director of Morocco's Forest



Department who presided over the closing of the conference. After that Criss gave a presentation of the life and work of John that spanned over 40 years in several tropical wet and arid developing countries experimenting and



promoting the use of vetiver grass for soil conservation, with a good part of it with the World Bank. The plaque, at left, reads *"NORMAN HUDSON MEMORIAL AWARD 2006 is presented to JOHN C. GREENFIELD during 14th ISCO Conference, Marrakech, Morocco, May 14–19, 2006, for his outstanding contribution to soil and water conservation and the introduction of the Vetiver System to tropical agriculture. Samran Sombatpanit, Acting President, World Association of Soil and Water Conservation."*

The Norman Hudson Award is given to an outstanding soil and water conservationist of international level once a year. The first award was given to Prof. Calvin Rose of Griffith University, Queensland, Australia. The second one was presented to Rolf Derpsch of Paraguay and the third one was for John Greenfield of New Zealand.

The following article reflects the thoughts of Dr. Criss Juliard when he was a stand-in to receive the Award. He composed this information for publishing in the Vetiverim, the official newsletter of the Office of the Royal Development Projects Board, Bangkok, Thailand.

Vetiver System Developer Recognized by the Highest Soil and Water Conservation Award

Marrakech, Morocco, Criss Juliard, The Vetiver Network, Rabat, Morocco. cjuliard@mtds.com

How does a low-profile, shy person who was the thinker and doer behind one of the most successful and effective soil and water conservation measures during the past 50 years receive an award at a large congress? Easy; he asks for a stand-in for him in Marrakech while he remains in his country of New Zealand at the opposite end of the globe.

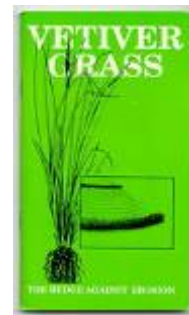
I was that lucky stand-in, as I participated in the International Soil Conservation Organization (ISCO)'s 14th conference, held in May 2006 in Marrakech, Morocco. There were over 230 presentations during the 5-day congress. The theme was 'water management and soil conservation in semi-arid environments,' appropriate for the region and the times. The conference offered some very good reports, other less so. Nearly half of the presentations related to quantifying the problems; only one fourth recounted solutions. One excellent report was from the work conducted by WOCAT (World Overview of Conservation Approaches and Technologies), whose upcoming opus magnums *"Where the Land is Greener"* will be available in a few months. It is a compilation of 42 different technologies used and practiced worldwide and assembled in a standardized format for ease of study and comparison: <http://www.wocat.net/books.asp>.

The congress closed its bi-annual gathering of researchers and practitioners with the usual plenary session that wittingly synthesized the presentations and proceedings. This final session was highlighted by the presentation of ISCO member organization the World Association of Soil and Water Conservation (WASWC)'s coveted Norman Hudson award to John C. Greenfield who could not be present. The award is given for distinguished service in recognition of international accomplishments in soil and water conservation. Dr. Samran Sombatpanit, WASWC's Acting President read the nomination and brief description of John Greenfield's career. The award was given by Mr. Said Abdelah, regional director of Morocco's Forest Department who presided over the closing of the conference.

John worked in the tropical wet and arid zones of developing countries for 40 years developing a system of soil and moisture conservation that would be sustainable in extreme climates (the Vetiver System that evolved is one of those technologies included in the upcoming WOCAT book). The last 18 years of his career were with the World Bank as a Senior Agriculturist. During this period he saw the inappropriateness of the accepted systems of

engineered conservation measures, and he made it his mission to develop a simpler, eco-friendly and affordable technology that was as useful to the poorest subsistence farmers as for major soil and water conservation projects. It was at his insistence when he joined the World Bank's agricultural team in New Delhi, India in the 1980s, that the modern day Vetiver Systems initiative was born. Against much opposition he introduced vetiver grass hedgerows for soil and water conservation on many of the watershed development projects in India. The introduction was a success, and today, ever increased usage, and application attests to the System's appropriateness.

Upon accepting the award in John's place, I had the honor of presenting to the congress a powerpoint presentation assembled by John and colleagues highlighting his early observations of the soil and water conservation problems and the path he took to develop a dynamic, vegetative system to solve them. John authored the handbook "Vetiver Grass – A Hedge Against Erosion," which has been published through five editions and in at least 20 different languages. This "green book" has had over 300,000 copies run off and distributed in more than 100 countries worldwide. His most recent book, "Vetiver Grass – An Essential Grass for the Conservation of Planet Earth," merits recognition for its relevance to helping resolve the persistent problems of global soil and water conservation. It is to vetiver's credit as well that the prestigious award recognizes the role the plant and the system plays in the pantheon of solutions to our global effort to reduce and reverse soil erosion and improve water quality.



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The following photos were shown in the powerpoint presentation that John Greenfield ([27@xtra.co.nz](mailto:27@xtra.co.nz)) prepared for this occasion. The powerpoint file, around 8.5 MB, can be sent by e-mail to anyone whose mailbox can receive a file of that size.

*Severe gully erosion was common throughout the cane areas in Fiji during the 1950s.*



*I introduced the then standard method of soil conservation to Fiji in the early 1950s, namely contour banks, leading to waterways etc. These were destroyed by high intensity tropical storms. They also took out of production a 5 m strip of land to construct the banks.*



*The Solution: In the early 1950s, I introduced the Vetiver System. Here my extension workers are learning to plant vetiver hedges for the first time. We knew little about the system then, and planted the initial hedges on the strict contour. As vetiver hedges only filter runoff, we now know this system works better planted across the slope.*



*Today, a perfect vetiver hedge planted across the slope. It is easy for the farmer to follow with his plough.*



*The farmers in Andhra Pradesh showing me their appreciation for introducing the vetiver system.*

## ASSOCIATION NEWS

### An advisory service of WASWC is now commencing – which all members are welcome to use

Our Association has established an objective of being a forum for global members. Such a function is envisaged as especially beneficial to colleagues from developing countries with poor resources. To make this function proceed faster, we have initiated a new online advisory service that all members may utilize as required. As a start, several specialists in various fields have pledged to assist in giving advice to any WASWC members who e-mail them, while members are asked to judge that the nature and extent of their questions and requests are appropriate. The following specialists have agreed to help in the indicated fields and we request others who wish to volunteer to write to the Editor at: [sombatpanit@yahoo.com](mailto:sombatpanit@yahoo.com) and mention the specialisms which they wish to offer.

| No. | Name and E-mail Address                                                                                                                                                    | Affiliation - Address                                                                                                                                            | Subject(s) to Advise                                                                                                                                                                                                                                                                                                                                        |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | Dr. Gan Yantai<br><a href="mailto:gan@agr.gc.ca">gan@agr.gc.ca</a>                                                                                                         | Agriculture and Agri-Food<br>Canada, Swift Current, SK<br>S9H 3X2, Canada                                                                                        | - Soil management, especially green<br>fallowing                                                                                                                                                                                                                                                                                                            |
| 2   | Dr. S.N. Prasad<br><a href="mailto:cvprasad@olemiss.edu">cvprasad@olemiss.edu</a>                                                                                          | Department of Civil<br>Engineering, University of<br>Mississippi, MS 38677, USA                                                                                  | - Sediment transport<br>- Erosion process                                                                                                                                                                                                                                                                                                                   |
| 3   | Dr. R. Scott Van Pelt<br><a href="mailto:svanpelt@lbk.ars.usda.gov">svanpelt@lbk.ars.usda.gov</a> ,<br><a href="http://www.lbk.ars.usda.gov">www.lbk.ars.usda.gov</a>      | USDA-ARS Cropping<br>Systems Research<br>Laboratory, Wind Erosion<br>and Water Conservation<br>Research Unit, 302 W I-20,<br>Big Spring, Texas, TX 79720,<br>USA | - Wind erosion of agricultural land<br>- Generation and vertical flux of dust<br>- Chemical and biochemical transport on<br>dust<br>- Atmospheric physics and stochastics of<br>near-surface winds (<0.1 m)<br>- Soil water dynamics of dryland<br>cropping systems<br>- He would like to enter a discussion on<br>the recently coined term 'critical zone' |
| 4   | Dr. Ted M. Zobeck<br><a href="mailto:tzobeck@lbk.ars.usda.gov">tzobeck@lbk.ars.usda.gov</a> ,<br><a href="http://www.lbk.ars.usda.gov/wewc">www.lbk.ars.usda.gov/wewc</a>  | USDA-ARS Wind Erosion<br>and Water Conservation<br>Research, 3810 4 <sup>th</sup> Street,<br>Lubbock, Texas, TX 79415,<br>USA                                    | - Wind erosion research and control<br>- Soil physical properties<br>- Soil management<br>- Soil quality/ evaluation                                                                                                                                                                                                                                        |
| 5   | Prof. Michael A. Fullen<br><a href="mailto:m.fullen@wlv.ac.uk">m.fullen@wlv.ac.uk</a><br><a href="http://myprofile.cos.com/m.fullen">http://myprofile.cos.com/m.fullen</a> | School of Applied Sciences,<br>University of Wolverhampton,<br>Wolverhampton WV1 1SB,<br>UK                                                                      | - Soil analytical techniques<br>- Soil conservation technology<br>- Soil management                                                                                                                                                                                                                                                                         |

With this service launched, WASWC has achieved more than ever in becoming a member-for-member association.

### What are new on our websites?

▲ We have started a new webpage called 'Climate Change': <http://waswc.ait.ac.th/climate.html> by starting to post papers in that subject, with the first two of them from John Burton, a retired chemical engineer who volunteers to be the site Guest Editor. His papers 'Climate Change – An Introduction' and 'Climate Change' give basic information to those unfamiliar with the subject. John will provide more papers in the educational line, while members are welcome to send in your own, plus some popular papers of this subject. You may see a paper of Don Reicosky, our frequent contributor, on 'Carbon is the "C" that starts "C"onservation' posted as the first paper in 'Other Articles' category. However, please make sure you have obtained permission from the respective author or publisher to post it on the website. You may contribute some official documents of interest, such as those from Rio (1992), Kyoto (1997) and Johannesburg (2002). We will post them for the benefits of our members.

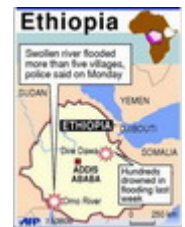
Contact John directly at: [jjburton@verizon.net](mailto:jjburton@verizon.net) when you want to contribute your papers or for any other purposes. Papers are posted according to the following categories:

- John Burton's Articles
- Other Articles
- Official Documents Concerning Climate Change
- Opinions from WASWC Members on Climate Change (to initiate an e-mail discussion later)

▲ You may be interested to see flooding in Ethiopia, a rare event in the past, but no one can predict the future. Please click <http://outdoors.webshots.com/album/553241046OLGXgx>.



▲ The 72 photos from the CIAT's Cassava Program in Thailand, Vietnam and China have not been much visited. They have been posted at <http://outdoors.webshots.com/album/552179413rmtNT?start=0>. This photo shows a simple but practical way of collecting soil loss and runoff from a cassava trial plot from Baria village, Vungtau, Vietnam. Several photos show this system in different perspectives.



▲ Approx. 100 photos concerning recent Climate Change events have been posted at <http://goodtimes.webshots.com/album/555225895BgEcYj>.



▲ **Following papers of Journal and Proceedings are posted on the website** <http://homepage2.nifty.com/waswc/publication/j-articles.htm>:

- Companion Modelling to Facilitate Collective Land Management by Akha Villagers in Upper Northern Thailand, Barnaud, C. et al.
- Preliminary Assessment of Soil and Water Conservation Status in Drought Prone Foothill Region of North-West India, Arora, S.
- The Paradigm of Conservation Agriculture, Dumanski, J. et al.

### Winners of Photo Competition 7 (deadline March 25, 2006)



Top: Salt scald, Yalanbee, Western Australia, Australia  
Photo: Arthur Conacher, University of Western Australia, Australia.  
[Arthur.Conacher@uwa.edu.au](mailto:Arthur.Conacher@uwa.edu.au)



Middle: Soil conservation practices in gently sloping area, Nepal  
Photo: Basu Regmi, Sustainable Soil Management Program, SSM-P G.P.O. Box 688, Kathmandu, Nepal. [basu.regmi@helvetas.org.np](mailto:basu.regmi@helvetas.org.np)



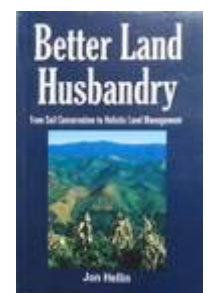
Bottom: Three Hills in series showing trends in terraces, Kabale, Uganda  
Photo: B.D. Sande, Agroforestry Scientist, Forestry Resources Research Institute (FORRI) of NARO, P.O. Box 311 Kabale, Uganda, [bdsande@yahoo.co.uk](mailto:bdsande@yahoo.co.uk)

Winners are welcome to choose a book from [www.scipub.net](http://www.scipub.net) of his/her choice and let us know.

Members are invited to send in more photos; the next deadline will be December 25, 2006.

### Jon Hellin's book on Better Land Husbandry might have been sent to you

Through the cooperation between Jon Hellin ([j.hellin@cgiar.org](mailto:j.hellin@cgiar.org)), author of the new book Better Land Husbandry, and WASWC, the book has been sent to around 430 members, largely in developing countries and some in developed countries who organize training or academic courses for students coming from developing countries. We are grateful to the Department for International Development (DfID), UK, who has generously sponsored this project. If you have not received it by now, it means you are not on the list. If you are interested, you are welcome to purchase the book at 40% discount as a WASWC member. Contact the publishers and



purchase online at [www.scipub.net](http://www.scipub.net), and mention about your membership in our association. In case you have received it, the author will be glad to hear from you and learn how you think about his book and whether you have some suggestions for improving the next edition. [Better Land Husbandry – From Soil Conservation to Holistic Land Management, by Jon Hellin ([j.hellin@cgiar.org](mailto:j.hellin@cgiar.org)), CIMMYT, Mexico. 2006. 315 pp. + 8 color plates, ISBN 1-57808-244-7. Science Publishers, Enfield, Jersey and Plymouth. [www.scipub.net](http://www.scipub.net) (No. 4 in the series Land Reconstruction and Management, Editor: Martin Haigh) Price: \$59.50/copy]

## New Officers



**Hassan Rouhipour**, National Representative for Iran. [hassanrouhipour@yahoo.com.au](mailto:hassanrouhipour@yahoo.com.au)

Born on 1948, Hassan received his first degree in Soil and Water from Ahvas Agricultural College, Shahid Chamran University of Ahvaz in 1971. He first worked on developing drip irrigation systems in Iran. He then became interested in land degradation and desertification and, in 1973, joined the Research Institute of Forests and Rangelands and did research in the south of Iran on soil erosion and combating desertification. During his employment in RIFR he completed a MSc degree in Soil Science at the University of Shahid Chamran (Ahvaz). In 1991 he participated in a Graduate Course in Hydrology at the University of New South Wales. He was then granted an Iranian student scholarship and completed his studies for a PhD in 1996 at Griffith University, Australia. Dr. Rouhipour is currently Head of the Soil Erosion Group at the Desert Division of RIFR. He has carried out various research projects in the field of soil conservation and is currently leading a national research project entitled "Water Balance in Sand Dune Systems and Plant Growth". He also teaches soil erosion and conservation courses at the two Iranian universities for post graduate students. He has published three books on soil erosion and water balance and numerous scientific papers. He is an active member of the Iranian Soil Erosion and Sedimentation Committee as well as the Iranian Society of Soil Science. He enjoys reading Iranian literature, scientific discussions and swimming.



**Mourad ARABI**, National Representative for Algeria. [almouraddz@yahoo.fr](mailto:almouraddz@yahoo.fr)

Dr Mourad ARABI is Director of Research of INRF since 2001 and is currently responsible for coordinating the research program on the management of water conservation and soil and watershed management. He holds a Doctorate from the Scientific, Technological and Joseph Fourier Medical University, Grenoble, France. He can read, write and speak Arabic, French and English. He is a specialist on hydrological erosion, soil science, water and soil conservation, torrent control and watershed management. He served at University of Mostaganem, Algeria, between 1979 and 1991 and he held professional experience from 1982-2003. He has published several scientific articles, particularly on the subjects of agriculture and the management of water and soil conservation and he has participated in various congresses. He has supervised several research theses. He has been a consultant to the Ministry of Agriculture and to TECSULT, Canada. He can be contacted at: Station INRF, BP 193 Ain Dheb, 26001 Médéa, Algeria. Personal Tel.: 00 213 (025) 59 23 34/ (074) 55 45 55; Fax: +213 58 60 23 08.



**John Geraghty**, National Representative for Ireland. [aggeraghty@hotmail.com](mailto:aggeraghty@hotmail.com)

John Geraghty was born in Clonmel, County Tipperary, Ireland, in December 1968. He graduated with a Bachelor of Agricultural Science Degree (B.Agr.Sc.) from University College Dublin in 1992 and went on to complete a Master's Degree (M.Agr.Sc.) in Rural Development in 1995. He has worked in agricultural research, extension and rural development since then. This includes periods in Benin (West Africa) with the German Technical Cooperation Agency (GTZ) in a collaborative project developing the Beninese National Plant Protection Service, and Lesotho (Southern Africa) with the United Nations World Food Programme. He was awarded a Nuffield Scholarship in 2003 and studied Conservation Agriculture in Central and South America, visiting researchers, extension personnel and farmers in Mexico, Argentina, Brazil, Paraguay and Uruguay during his study tour. He currently works as an agricultural consultant and is a lecturer in sustainable crop production systems with Waterford Institute of Technology in Ireland. He is General Secretary of Conservation Agriculture Ireland. In his spare time, John likes hill-walking, mountain climbing and fly fishing. His address: Agriculture Consultant, Glen, Kilsheelan, Clonmel, Co. Tipperary, Ireland. Mobile: 00 353 86 8112060; Home: 00 353 52 33205.

## Obituary

Dear Samran,

This is to inform our friends with deep sadness, and regret the passing away of our friend Ferdinand Bonn from the University of Sherbrooke (Canada). He was on a field mission to advise a Moroccan doctorate student on soil erosion assessment in the Ourika watershed (Atlas Mountains, Marrakech, Morocco). He had been helping us since 1986 to develop geomatic tools for soil erosion assessment and mapping in North Africa and he hosted and co-advised more than 20 Moroccan doctorate students in this field.



He was with me in Rabat the day before and I passed to him your message about the Monitoring and Evaluation book to be expected by the end of the year. He was proud to be co-author of part of a chapter. We felt bad not having had the opportunity to be with you all at the ISCO Conference in Marrakech. Our former PhD graduates were there and one of them, Dr. Driss Haboudan (University of Shikoutimi, Quebec, Canada), was with him in the car accident. Driss however survived and he is recovering well.

Please visit the memorial web site: [http://www.usherbrooke.ca/geotel/nouvelles/f\\_bonn\\_eng.html](http://www.usherbrooke.ca/geotel/nouvelles/f_bonn_eng.html)

- Aziz Merzouk (NR for Morocco) [merzoukabdelaiz@yahoo.com](mailto:merzoukabdelaiz@yahoo.com)

## MEMBERS' FORUM

☀ Dear Samran,

Last March I had the opportunity to present current work on no-tillage to Her Majesty Queen Beatrix of The Netherlands, when she visited Buenos Aires, Argentina, with her delegation. She was deeply interested in the technique, and especially in our organizations AAPRESID (Argentinean No-Till Farmers Association) and CAAPAS (American Confederation of Associations for a Sustainable Agriculture). These organizations have made considerable progress in sustainable agricultural production. After the presentation, there was a 2-hour closed-door meeting between the Dutch delegation and AAPRESID-CAAPAS representatives concerning future co-operation.

- Roberto Peiretti, Board member of AAPRESID and President of CAAPAS, [sdrob@idi.com.ar](mailto:sdrob@idi.com.ar) (In the photo: From left, Roberto Peiretti, HM Queen Beatrix and Jorge Romagnoli, President of AAPRESID).



☀ Dear Samran,

A team of experts from Thailand came to Tanzania recently to explore investment opportunities in Tanzania. Tanzania has recently become an increasingly business and investment destination for Asians - mainly from India, China, Malaysia, Thailand, Korea and Japan.

The Thais met Tanzanian officials and discussed many issues including 'manufacture of rain' as a means to optimize moisture conditions in soil at times of growing export crops. The Thais assured us that Thailand has the technology to "manufacture rain" in the skies of Tanzania. This story dominated headlines in the local media. And this temporarily dominated the footage on some of the local TV programs. Officially, Tanzania seems to have taken the 'offer' on-board, pending issues unresolved.

One official from a department responsible for the environment was quoted as saying that before Tanzania can enter into 'manufacture of rain' a lot more has to be done and tested: it needs adequate research on applicability and side-effects/environmental impact on the targeted agricultural land.

To me, the substances which are injected/ released in the atmosphere to bring about or influence condensation and rain formation will definitely accumulate in the soil after each rain drop reaches and infiltrates the soil. Continued applications will imply continued accumulation of those substances and will definitely influence some changes in soil properties, which will also influence the quality of intended farm produce. And many more issues.

The Thai delegation left the country with a set of signed agreements and is now probably laying out an implementation strategy. We are told that manufacturing rain is a common undertaking in Thailand; you never shared this information with me before! Is this technology of interest to WASWC given that it relates to soil moisture management?

While ties between the two countries are already strong at those higher levels, I hope that those between us professionals are equally strong. I have no doubt that this year will witness a visit by you and your team. Perhaps one of the lecturers who will accompany you might be conversant with technologies for 'rain manufacturing' so that time will be allocated for him/her to lecture about it at Sokoine University of Agriculture, in Morogoro. Hopefully!

- Paulo Tarimo, Ministry of Agriculture, Dar-es-Salaam, Tanzania ([tarimops@hotmail.com](mailto:tarimops@hotmail.com))

- Ed: Thanks Paulo. Certainly, this technique of rain making is of importance to WASWC and its members concerned with water management in the field. The technique has been known and used in Thailand for several decades already – as a royal initiated program. So far we have had no problem with the accumulation of substances in the soil. (It is normally dry ice, CO<sub>2</sub>, or silver iodide, which is used for that purpose.) I will find some information about it and let you know. If we can go to Tanzania this year one of us will definitely tell you about how 'rain manufacturing' is done in our country. Many thanks for your invitation.

## ICIMOD team visited SWMC, SRDI, Bandarban, Bangladesh

☀ Dear Samran,



A team from ICIMOD visited the Soil Conservation and Watershed Management Centre (SCWMC), Soil Resource Development Institute (SRDI), Bandarban in July 2006 after discussions at Headquarter, Dhaka. The team was composed of three members from ICIMOD (Dr. Sanjeev Bhushar, Dr. Isabelle Providoli and Dr. Kishore) with BANCAT coordinator Mr. S.K. Khisa. Scientists from the Bangladesh Forest Research Institute (BFRI) also accompanied the team. They evaluated the on going experiments of SCWMC and praised the concept of management of a micro watershed for a family consisting of five members. The concept focused on the requirements of food, firewood, timber, bamboo cane etc. for house repair, fruit for nutrition and cash, fodder for milking cows and year round vegetables for family

consumption and cash. Management includes the establishment of vegetative barriers (hedgerows), gully control by vegetative measures, planting different types of forest and fruit trees, grass strips etc.

Photo: Member of the team examines the efficiency of the soil loss measuring system.

- J.U. Shoaib, Soil Resource Development Institute, Dhaka 1215, Bangladesh. [jushoaib@aitlbd.net](mailto:jushoaib@aitlbd.net)

## NEW INFORMATION SOURCES

### Books, Proceedings, Manuals and Reports

**Better Land Husbandry – From Soil Conservation to Holistic Land Management**, by Jon Hellin ([j.hellin@cgiar.org](mailto:j.hellin@cgiar.org)), CIMMYT, Mexico. 2006. 315 pp. + 8 color plates, ISBN 1-57808-244-7. Science Publishers, Enfield, Jersey and Plymouth. [www.scipub.net](http://www.scipub.net) (No. 4 in the series Land Reconstruction and Management, Editor: Martin Haigh) Price: \$59.50/copy

### Conservation Agriculture Review for Europe

The European SOWAP and ProTerra projects have come together to write a review of Conservation Agriculture in Europe. Currently we are giving it away free. So if any WASWC colleague wants a copy please fill the form in [www.sowap.org/ordercameo.htm](http://www.sowap.org/ordercameo.htm). I hope you might find it useful. – Mike Lane, Syngenta, Switzerland. [mike.lane@syngenta.com](mailto:mike.lane@syngenta.com)

Ed: John Garaghty ([aggaraghty@hotmail.com](mailto:aggaraghty@hotmail.com)), General Secretary of Conservation Agriculture Ireland and our NR for that country, confirmed it is an excellent production of more than 100 pages that explains the principles and concepts surrounding CA. Only one copy is given to one postal address. Thanks John.

### USDA NRCS National Handbook of Conservation Practices

The USDA Natural Resources Conservation Service (NRCS) seeks public comments within 30 days of May 30 on its intention to issue a series of new or revised conservation practice standards in its National Handbook of Conservation Practices. These standards include: 'Above Ground, Multi-Outlet Pipeline (Code 431),' 'Irrigation System, Microirrigation (Code 441),' 'Pond Sealing or Lining--Flexible Membrane (Code 521A),' 'Land Reclamation, Abandoned Mine Land (Code 543),' 'Land Reclamation, Currently Mined Land (Code 544),' and 'Watering Facility (Code 614).' NRCS State Conservationists who choose to adopt these practices for use within their States will incorporate them into Section IV of their respective electronic Field Office Technical Guides (eFOTG). These practices may be used in conservation systems that treat highly erodible land, or on land determined to be wetland. Electronic copies of the draft standards are posted at <http://ftp-fc.sc.egov.usda.gov/NHQ/practice->

[standards/federal-register/](http://standards/federal-register/) - Paper copies are available from, and questions may be directed to, Daniel Meyer by e-mail at [Daniel.Meyer@wdc.usda.gov](mailto:Daniel.Meyer@wdc.usda.gov) - USDA NRCS. More info in <http://a257.g.akamaitech.net/7/257/2422/01jan20061800/edocket.access.gpo.gov/2006/E6-8203.htm> (From ASA-CSSA-SSSA Science Policy Report - 060531)



**Proceedings of the International Symposium on the Bioregional Planning and Action with Nature**, College of Bioresource Sciences, Nihon University Center for Natural Environment Sciences, Fujisawa City, Kanagawa, Japan, September 30, 2005. In Japanese and

English, 192 pp. A few copies are available at [cnes@brs.nihon-u.ac.jp](mailto:cnes@brs.nihon-u.ac.jp), [www.cnes.brs.nihon-u.ac.jp](http://www.cnes.brs.nihon-u.ac.jp)



**Challenges to International Waters: Regional Assessments in a Global Perspective (GIWA Final Report)**,

Published by UNEP in 2006, 120 pp. ISBN 01-89584-47-3. Contact Marion Cheatele, Officer in Charge, Division of Early Warning and Assessment, UNEP, P.O. Box 30552, Nairobi, Kenya at [DEWA.Director@unep.org](mailto:DEWA.Director@unep.org). The Report is also accessible online at [www.unep.org/dewa](http://www.unep.org/dewa), [www.giwa.net/publications](http://www.giwa.net/publications) and can be ordered at UNEP's online bookstore [www.earthprint.com](http://www.earthprint.com).



**United Nations University Annual Report 2005**, 56 pp. This publication

illustrates also 12 books the UNU published in 2005. Contact the Office of Communications, United Nations University, 53-70, Jingumae 5 chome, Shibuya-ku, Tokyo 150-8925, Japan. [mbox@nu.unu.edu](mailto:mbox@nu.unu.edu), [www.unu.edu](http://www.unu.edu). UNU also publishes a free e-newsletter available at <http://update.unu.edu>.

### The Environmental Management Glossary

A new title from the Soil and Water Conservation Society (SWCS). Please consider purchasing this low-cost comprehensive resource for your department. Just published recently, it gathers terms from multiple disciplines and presents them to the reader in an easy to understand manner. This 282-page, soft cover book, has over 4,000

terms used in over 50 technologies. While you may have specialized glossaries for your area of expertise, this glossary will be useful to you as you encounter interdisciplinary activities. You may purchase or learn more about other resources of the Soil and Water Conservation Society's new online store at: <http://store.swcs.org>. Price: \$25/copy + shipping & handling.

- Soil and Water Conservation Society, 945 SW Ankeny Rd., Ankeny, IA 50023-9723, USA. Phone: +1-(515)-289-2331; Fax: +1-(515)-289-1227; [swcs@swcs.org](mailto:swcs@swcs.org), [www.swcs.org](http://www.swcs.org)

## Journals, Magazines, Newsletters and Brochures

**Soil Quality Newsletter** is provided by the North Carolina Soil Quality Team. The team is made up of Federal, State and local employees from the Natural Resources Conservation Service, Division of Soil and Water, and Conservation Districts. The team leader is the NRCS-USDA, NC State Agronomist. The team leader strives to increase understanding of soil quality, keep abreast of the new research, and assist conservation partners with improved soil management techniques. Contact Teresa Hice for copies of this newsletter at [thice@co.wake.nc.us](mailto:thice@co.wake.nc.us) and +1 (919) 2501061, See <http://www.ars.usda.gov/mwa/ncscrl> and <ftp://ftp-fc.sc.egov.usda.gov/NC/NCweb/Technical/sqnl/sqnl-5-06.pdf>



**Australian LANDCARE** quarterly magazine (Supported by the Australian Government - accessible at [www.australianlandcaremagazine.com.au](http://www.australianlandcaremagazine.com.au)), June 2006. ISSN 1440-4387. 66 pp. Present issue features articles about Revegetation Strategies. Subscribe at [subscriptions.netcirc@ruralpress.com](mailto:subscriptions.netcirc@ruralpress.com) at a rate of A\$28.10 a year. A good reading companion of our column Landcare Highlights.

## Legume Research Network Project Newsletters

This is to inform you that Issue 12 of the LRNP Newsletter has been released and you can download your copy from the KARI website - <http://www.kari.org/>. Once you get into the KARI homepage, go to "Publications" and scroll down to "Publications in collaboration with other stakeholders". There you will find "Legume Research Network Project Newsletters". Click on it to go to the page where all the 12 issues are posted. They are in PDF format and are easy to download. Please note that Issues 1-11 are also available at the following site; [http://ppathw3.cals.cornell.edu/mba\\_project/ciepca/lrnpnews.html](http://ppathw3.cals.cornell.edu/mba_project/ciepca/lrnpnews.html).

- Mureithi Joseph, KARI, Kenya, [jmureithi@africaonline.co.ke](mailto:jmureithi@africaonline.co.ke)

**International Journal of Spatial Data Infrastructure Research (IJS DIR)**. For more information see the Journal web site: <http://ijsdir.jrc.it>

## Websites:

- a webmap to give you simple and easy access to **102 years of climate data** (the data source is CRU Climate Research Unit of University of East Anglia, UK). <http://dw.iwmi.org/dataplatform/ClickandPlot.aspx>

- an on-line data and information portal with CP-WF that provides access to **water, agriculture and environment**

**scientific data**. The portal name is IDIS - Integrated Database Information System. <http://dw.iwmi.org/>

- a new and much improved version of the **World Water and Climate Atlas** interface for accurate data on climate and moisture availability for agriculture. The resolution of data for the Atlas is 0.1 degree (~10 Km) and the coverage is the globe. <http://www.iwmi.cgiar.org/WAtlas/atlas.htm>.

## New Irrigation Equipment Supply Database

The Water Resources, Development and Management Service of FAO and the International Programme for Technology and Research in Irrigation and Drainage (IPTRID) have recently joined forces for the upgrading of the Irrigation Equipment Supply (IES) database.

This tool, developed as part of FAO's mandate to provide information on irrigation, seeks to establish an up-to-date list of Suppliers and Manufacturers providing specific irrigation equipment worldwide. The new version of the database is primarily Supplier/ Manufacturer-driven in the sense that information contained in the database is inserted and maintained exclusively by the Suppliers/Manufacturers of irrigation equipment. Once the registration has been submitted, the Supplier/Manufacturer receives a confidential identification code permitting an independent update of the Supplier/Manufacturer and equipment information at any time. The database offers several query facilities: besides identifying and contacting Suppliers and Manufacturers at regional and country level, users can gather information on irrigation equipment and on irrigation standards and can find links to other relevant sites. Please, visit the new Irrigation Equipment Supply (IES) database at [www.fao.org/landandwater/ies/](http://www.fao.org/landandwater/ies/).

## Hundreds watch 'corpse flower' bloom

See the flower in <http://www.biol.vt.edu/greenhouse/amorphophallus.htm>

Hundreds of visitors filed through a Virginia Tech greenhouse to get a glimpse, and a whiff, of a powerfully malodorous "corpse flower" as it bloomed. The large Indonesian plant, whose botanical name is *Amorphophallus titanum*, began opening up about 6 p.m. Friday and was in full bloom by early Saturday morning, August 5, 2006, with a height of 161 cm, curator Debbie Wiley-Vawter said in a telephone interview Monday.



The plant emits a stench to attract decaying flesh-eating beetles, flies and sweat bees for pollination. Once it blooms, the odor lingers for about 8 hours, then it takes several more years before the plant has enough energy to bloom again.

Wiley-Vawter and her colleagues put out word Friday that the plant was blooming, drawing a steady stream of visitors. She said groups of 10 to 20 were brought in every half-hour until the plant closed up Saturday night. An undetermined number also watched the plant's progress via Web cam — but they were unable to sample the flower's signature stench.

Virginia Tech claims to have the only two blooming corpse plants in Virginia. The seedlings were donated to the school after James Symon of Sumatra collected and donated seeds to the International Aroid Society in 1993.



[www.semeato.com](http://www.semeato.com)

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## COMMENTARY

### Soil Carbon Sinks and Global Warming

Don Reicoski\*

Atmospheric concentrations of carbon dioxide (CO<sub>2</sub>) can be lowered either by reducing emissions or by taking CO<sub>2</sub> out of the atmosphere and storing it in terrestrial, oceanic, or freshwater aquatic ecosystems. While the burning of fossil fuels are 'sources' of CO<sub>2</sub>, removal of carbon (C) from the atmosphere and storage in tree biomass or as organic matter in soils, are "sinks". A sink is defined as a process or an activity that removes a greenhouse gas (GHG) from the atmosphere. This removal process is achieved naturally, and quite effectively, through photosynthesis. Living plants take CO<sub>2</sub> from the air and in the presence of sunlight and water, convert it into seeds, leaves, stems and roots. Oxygen is released through the process. Part of the CO<sub>2</sub> is retained and "sequestered", or stored, as C in the sink. The long-term conversion of grassland and forestland to cropland and grazing lands has resulted in losses of soil C worldwide, but there is a major potential for increasing soil C through restoration of degraded soils and adoption of soil conservation practices. Agriculture has the potential of becoming a much larger sink for CO<sub>2</sub>, if specific management practices are followed.

Most C sinks are very large and very slow moving; human influence on these sinks is generally deemed fairly minimal, with the possible exception of soils and agriculture. Oil, coal and natural gas represent the final evolution of pre-historic C sinks that are now "fossilized" into mineral form. Plants and trees absorb CO<sub>2</sub> from the atmosphere via photosynthesis, retain the C component as the building block of plant fiber and release oxygen back into the atmosphere. Therefore, long-lived, high biomass plants, such as trees represent effective C sinks as long as they are maintained but the degree to which the positive impacts of "sinks," both forestry and soils, can be utilized in an emissions trading context is still a matter of contentious debate at the IPCC and other forums.

In addition to being a generator of GHGs, agriculture has the potential to sequester (or store) large amounts of C and other GHGs in the soil. The activities that may enhance the storage of C in agricultural soils include planting trees, converting from conventional to conservation tillage, adopting improved cropping systems, converting to perennial crops and restoring wetlands. Conservation agriculture and residue management improvement have the most potential to sequester C in agricultural soils. The prospect of sequestering C in

agricultural soils has generated substantial interest both in the scientific community and among policymakers in the US. Lal et al. (1998) estimate the physical potential of US cropland to sequester C at between 75 million and 208 million metric tons of C per year. This physical potential cannot be realized, however; without policies that take into consideration farmers' profit motives. Policies under discussion include formal C markets and direct incentive payments or subsidies to farmers through a government program.

The Kyoto Protocol on climate change proposes that countries should be allowed to soak up some of their emissions of greenhouse gases using biological or biospheric "sinks." The nature of these sinks is dramatically different from other more permanent items in the C balance. Major emissions from fossil fuels and cement production show a slow steady increase. Biospheric uptake depends on the weather, the amount of precipitation, temperature and radiation, and displays a variability associated with the main weather patterns. The rate of photosynthesis and thus C sequestration is influenced by such factors as climate, soil characteristics, topography, species and age of the biomass. Accumulation of sequestered C in soils and forests tends to be slow in the early stages of growth, but accelerates as crops and trees grow towards maturity and then decreases once maturity is reached. Superimposed on this, are events like forest fires, major storms and insect plagues. This leads to considerable variation in the terrestrial uptake and subsequent conversion to soil sinks on the scale of a few years to a decade. This temporal variation contributes to uncertainty and limited acceptance of soil and forestry C credits. We will need to better understand and control the natural C cycle if we are to keep CO<sub>2</sub> from flooding the atmosphere and wrecking our climate. And soils, like forests, are destined to play a key role.

There are many unanswered questions about the use of soil and forest C sinks to meet GHG emissions targets. This has raised doubts about the contribution of agriculture. The scientific community is working hard to provide reliable methods of measuring, monitoring and verifying C contents in soils. Agricultural sinks are acknowledged in the Kyoto Protocol in a limited manner. International consensus has not been reached on the role of C sequestration in soils for the first reporting period under the Kyoto agreement. International activities that can help achieve consensus include workshops focusing on sequestration activities and an IPCC report currently underway on land use, land use change and forestry and the potential for GHG offsets. Keys to gaining international understanding include developing scientifically sound projections of the potential for sequestration from agricultural activities and developing internationally agreed-upon methods for determining, reporting and verifying changes in soil C stocks.

Under the Kyoto protocol, C sequestration through reforestation is explicitly allowed, though no role currently exists for agricultural soils. The language of the protocol clearly allows for future admission of agricultural soil sinks; however, member countries are not likely to ratify its inclusion until key implementation issues are resolved. The inclusion of sinks in the Kyoto protocol is a major step forward in implementing a comprehensive C accounting system for the earth, but we continually need to improve our understanding of the terrestrial biosphere if we are to make a Kyoto protocol really work.

The primary objectives of C sequestration are usually not related solely to climate change issues, but rather to reducing environmental pollution and natural resource degradation. Agricultural soil management can play an important role. Intensive tillage in modern farming practices disrupts the C cycle. Soils which contain about 75% of C found on land are excellent sinks. However, with cultivation, the amount of organic matter that soils contain drops by 20-50%. The amount of CO<sub>2</sub> can also be influenced by human management, forest fires, drought or a particularly favorable growing season. Farmers have shown successfully that agricultural soils can be managed to store more CO<sub>2</sub> from the atmosphere when farmers adopt practices that increase yields and reduce soil disturbance due to tillage. Adopting these practices results in more CO<sub>2</sub> being absorbed by crop plants from the atmosphere and being converted in the soil to organic C, where it is stored. Support and encouragement of the best management practices to reduce soil degradation and environmental pollution would be entirely consistent with measures to reduce greenhouse gas emissions and their contribution to global warming.

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# FEATURES

**Gross National Happiness** by Rajni Bakshi, Mumbai, India. From Good Time Magazine ([www.gtweekly.com](http://www.gtweekly.com)), Santa Cruz, CA, USA. 34(55), 24 March 2005



The Himalayan kingdom of Bhutan is emerging as a global leader in the promotion of "Gross National Happiness" (GNH), a term coined by King

Jigme Singye Wangchuck in 1972. It signaled his commitment to building an economy that would serve Bhutan's unique culture. Today, the notion of GNH resonates with a wide range of initiatives around the world, defining prosperity in more holistic terms and measuring well-being rather than consumption. By contrast the conventional concept of Gross National Product (GNP) measures only the sum total of material production and exchange.

The evolving concept of GNH is an endeavor to enhance the sophistication of human systems by emulating the sophistication of nature. Countries are compelled to keep growing indefinitely. Today it is acknowledged that the human economy cannot keep growing at the cost of habitat. Yet after two decades of expanding environmental regulation, the race to save the planet is still being lost. This is partly because production systems and consumption patterns are out of sync with the planet's carrying capacity. The pressure for ever higher GNP is merely one manifestation of this.



GNH is seen as one of several ways in which these imbalances might be rectified. An international gathering in Bhutan's capital

Thimphu, in 2004, reflected a consensus that GNP would still need to be measured, but in ways that are actually conducive to GNH. The difficulties of defining or measuring happiness have also helped to keep the concept of GNH as a well-intentioned slogan on the fringes of serious discourse. However basic happiness, as it pertains to quality of nutrition, housing, education, health care and community life can be measured. Three major factors seem to be responsible for GNH's expanding credibility. One: an international awareness that GNP is one-dimensional and thus a misleading measure. Two: a wider range of indices have been devised, offering a more realistic assessment of material prosperity. Three: growing pressures for an infusion of moral and cultural values into the core of economic policy.

The GNP was never intended to be a measure of well-being. Since 1995, the American economy has been annually assessed with an alternative yardstick, the Genuine Progress Indicator (GPI), presenting a relatively grim picture

of American society when compared with GNP. The GPI gets closer to the reality of people's lives by including household and volunteer economies, factors completely ignored by GNP and accepting as losses, for example, monies spent on preventing or repairing crime damage, and coping with environmental degradation.

The GPI is just one of several international endeavors to evolve new indicators that measure actual conditions of human well-being. Bhutan's insistence on GNH over GNP inspires people beyond their borders. The country's commitment to GNH has meant that moral and ethical values are placed at the core of its economic strategies for ensuring better food, housing and health for its population. The facilitation of GNH should be accompanied by the development of indicators that address human physical and emotional well-being. They must be capable of use for self-evaluation so that individuals and groups can gauge their progress in the attainment of happiness. In addition, indicators should facilitate full accountability, good governance, and socially constructive business practices both in day-to-day life and in long-range policies and activities.

You may also like to read more about this issue, click [www.marioninstitute.org/matriarch/Switch.asp\\_Q\\_PageID\\_E\\_59](http://www.marioninstitute.org/matriarch/Switch.asp_Q_PageID_E_59)

## Carbon Issue Highlights

Below is listed a website for an article entitled "**Putting the carbon back: Black is the new green**" by Emma Marris, Washington correspondent for Nature. It is about the addition of pyrolysis char to the soil and terra preta soils. This article is found in Nature volume 442, August 10, 2006, pp. 624-626. The article suggests that we may be able to store more carbon as char in the soil than is omitted by all of today's fossil fuel use. Pls click

<http://www.nature.com/nature/journal/v442/n7103/full/442624a.html>

Published online August 9, 2006, the abstract reads: One way to keep carbon dioxide out of the atmosphere is to put it back in the ground. In the first of two News Features on carbon sequestration, Quirin Schiermeier asked when the world's coal-fired power plants will start storing away their carbon. In the second, Emma Marris joins the enthusiasts who think that enriching Earth's soils with charcoal can help avert global warming, reduce the need for fertilizers, and greatly increase the size of turnips.

- Don Reicosky, [reicosky@morris.ars.usda.gov](mailto:reicosky@morris.ars.usda.gov)

## Climate Change Highlights

### The Key Impacts of Climate Change on Tourism

Climate change could dramatically change the face of tourism, according to a collection of new research papers on the impacts of climate change on tourism. The papers form a special issue of the Journal of Sustainable Tourism – one of the world's top 4 tourism research journals (for details contact Tommy Grover at [Tommi@channelviewpublications.com](mailto:Tommi@channelviewpublications.com)). Guest edited by David Viner ([d.viner@uea.ac.uk](mailto:d.viner@uea.ac.uk)) from the University of East Anglia's Climatic Research Unit, the collection draws on the work of experts from Canada, France, Italy, the Netherlands, New Zealand, the UK and USA.

Existing research in this area has concentrated on the impact that travel for tourism is having on future climates. This collection gives research results for the opposite side of the climate/ tourism coin, including:

- The likelihood that Mediterranean summers may be too hot for tourists after 2020, as a result of too much heat and water shortages.

- Opportunities for the revival of northern European resorts, including Blackpool, in the next 20 years, as climate change, and rising transport costs, offer new 'local' holiday opportunities.
- Impacts on the skiing industry, across Europe and North America, and the likely growth of artificial snow making to maintain skiing complexes.
- The impact of increasing climatic unreliability, leading to droughts, debilitating heat waves, and fires, affecting the Mediterranean and key parts of Australia.
- Problems and opportunities for nature tourism as climate change affects the fauna and flora of areas of bio-diversity, leading to changing visitor flows.
- Ways forward, by changing travel and holiday period patterns, and by taking steps to mitigate impacts by using new building techniques and better resort planning,
- Better coordination and dissemination of research work and its findings on a global basis.

*David Viner leads the Climate Change Masters Program at the University of East Anglia, UK, and is leading the international community who are addressing climate change and its interactions with tourism. David has been at the Climatic Research Unit for 15 years and has contributed to many international projects as well as to the IPCC (International Governmental Panel on Climate Change).*

## Vetiver Highlights

**The Vetiver Network Awards for 2006**, Dick Grimshaw, Chairman, The Vetiver Network, [www.vetiver.org](http://www.vetiver.org)

Every 3-4 years the Vetiver Network makes cash awards to individuals and agencies for expanding the knowledge base and application of vetiver grass technology for environmental improvement purposes. The awards are to persons who have made a major contribution to vetiver research and development, not only for the actual work undertaken but also to its potential use and application by the wider public.

The 2006 awards are the fifth of a series of awards that have been made since 1990.

## Vetiver Champion



Dr. Tran Tan Van ([van@rigmr.org.vn](mailto:van@rigmr.org.vn)), of the Research Institute of Geology and Mineral Resources (RIGMR), Ministry of Natural Resources and Environment (MONRE), Thanh Xuan, Hanoi, and Coordinator of the Vietnam Vetiver Network is selected as the 2006 worldwide Vetiver Champion by The Vetiver Network due to his outstanding work over the past 5 years. He has been a driving force behind the rapid expansion of vetiver technology and its adoption in much of Vietnam. Over three quarters of all provinces in Vietnam are now using vetiver technology in some form for: erosion control, riverbank stabilization, infrastructure protection, wastewater management and disaster mitigation. He provides not only the guidance needed for technical activities, but he has inserted into this program an unlimited amount of energy and spirit that inspires others to move forward disseminating information on the multitude of vetiver uses. Dr. Van is a team player and has been able to effectively mobilize not only government resources, but those from the donor community (Dutch Government, the Wallace Genetic Foundation, the Australian Government, and the William Donner Foundation) as well. We, at the Vetiver Network, are pleased to announce this award to Dr. Tran Tan Van and hope that his efforts and those of his colleagues continue to accelerate across the entire country.

## Country Award



The Vetiver Network is pleased to announce that the 2006 country award for outstanding performance in disseminating and promoting the use of Vetiver technology goes to

Venezuela. Under the guidance of Gerardo Yépez Tamayo, ([redvenvetiver@gmail.com](mailto:redvenvetiver@gmail.com)) Coordinator for the Venezuela Vetiver Network and the regional Latin American Vetiver Network Oscar Rodríguez ([osrp@telcel.net.ve](mailto:osrp@telcel.net.ve)), vetiver use in Venezuela has expanded greatly over the past several years.

We would like to also thank the Polar Corporation Foundation, Faculty of Agronomy, Central University of Venezuela and Soil Science Society of Venezuela for their technical and financial support to introduce and promote Vetiver technology in their country. A movement to apply appropriate technology requires the support and coordination of a wide range of people across various landscapes and needs to be sustained over time. Evidence of this kind of effort is found in the Venezuela program.

We are confident that this program will serve as a model to others in the region and be a stimulus to motivate others to study and adopt vetiver systems as solutions to the wide range of problems facing them in Latin American countries.

## Innovation



Bingbing Yang ([yangbb@scbg.ac.cn](mailto:yangbb@scbg.ac.cn)) et al., under the guidance of Hanping Xia ([xiahnp@scbg.ac.cn](mailto:xiahnp@scbg.ac.cn)) in China has for the first time undertaken basic research on developing a cold-tolerant variety of vetiver. The implications of ultimately selecting a cold tolerant variety are very high given the need for effective soil and water conservation (erosion control) in temperate regions of the world. The ability to withstand winter temperatures would extend the reaches of Vetiver into North American, Northern Europe and Russia as well as China and mountainous regions of the Middle East. Their research represents the first steps on the path to selecting promising plant materials that have been genetically engineered to withstand cold temperatures.

Using an agrobacterium-mediated gene transfer system, Bingbing Yang successfully demonstrated not only its feasibility, but developed protocols that allow for explant regeneration via somatic embryogenesis. This methodology lays the foundation for screening and selecting for cold tolerance among potential new cultivars of *Vetiveria zizanioides*. This innovative approach to plant breeding is laying the groundwork that will someday see the selection of vetiver cultivars capable of thriving in regions that currently do not have vetiver as a tool to fight erosion, pollution and to stabilize infrastructure. The initial work for this research was funded by the Wallace Genetic Foundation and The South China Institute of Botany (Academia Sinica).

## Disaster Mitigation

Dr. Tran Tan Van and his colleagues have accomplished something special in Vietnam over the past 5 years with respect to disaster mitigation and environmental protection. This has been especially true with respect to protecting sea dykes when conventional systems have failed. The coastal areas of Vietnam are constantly being menaced by seasonal



Vetiver grass comes in with local participation ...



... And the bank stays intact after the flood season in Nov. 2005.

heavy storms linked to the annual typhoon season. Despite some early setbacks they persisted and showed the Vietnamese Government, particularly the Dyke Department, how a bioengineered solution offered a long-term, cost effective solution for coastal cities, industries and agriculture when faced with strong storms. Indeed in 2003, the Dyke Department issued state decrees 436 and 438 that mandated vetiver hedge use on riverbanks and on sea dykes. In September 2005 when Typhoon 7 hit Hai Hau District in Nam Dinh province, the government and Vietnamese people were able to see first hand how even young vetiver hedges could provide effective protection when conventional systems failed.

Dr. Van and his colleagues were assisted by the Chaipattana Foundation (of Thailand), both technically and financially to further this effort and create future projects dealing with coastal protection. Equally impressive has been the work his team has done with respect to riverbank protection and sand dune stabilization within Central Vietnam with support from the Dutch Government. Many communities in this region are located directly along riverbanks and eroding banks have caused much damage due to the wave action from motorized boats plying the various river systems. This effort has led other provinces to adopt vetiver technology. Finally the work implemented along the Ho Chi Minh Highway is also an example of successful bioengineering along long stretches of this new highway system. By 2005 more than 250 km had vetiver hedges protecting drains and road cuts and by 2006 more sections were being installed. Ultimately the entire 3,000 km highway will be protected by Vetiver making it probably the single largest use of Vetiver to prevent landslides in the world.

## Landcare Highlights

**International Landcare Study Tour**, May-June 2006, Victoria Mack, Director, Secretariat for International Landcare (SILC) Inc., Victoria, Australia [ymack@silc.com.au](mailto:ymack@silc.com.au)

In May and June 2006, Sue Marriott and Victoria Mack visited several countries with emerging Landcare programs to learn more about their use and adaptation of the Landcare model in their own environmental, social and economic contexts. The tour included South Africa, Kenya, Uganda, United Kingdom, United States of America (Washington D.C., Virginia and Alaska) and Fiji.

There is little doubt that Landcare is capturing international interest. Our study tour encouraged reflection on the potential of Landcare to become a global environmental movement. It was inspiring to see people using Landcare to achieve their goals.

What is it about Landcare that others find useful?

Firstly it is a name, a brand in many respects that offers the potential to link groups together with common objectives. Importantly it is also a mechanism for mobilizing people to learn about and care for their natural resources on which they depend for their livelihoods. Landcare is well regarded because of its overarching sensible and workable principles including:

- Its apolitical and secular volunteer driven structure;

- Local farmer, landholder and community ownership;
- Bottom-up self determination and action with local facilitators in partnership with government and agency support at the top;
- Collective strength generated by groups learning and working together under a Landcare banner.

Landcare in the countries visited is similar to Landcare in Australia – farmers, landholders and communities working together to identify environmental (and often social and economic) issues and problems, find solutions and then take action.

The most positive finding was that Landcare is getting results for farmers, landholders, and rural and urban communities. Some of these come from the group process itself, collectively learning and working together on specific projects. More tangible results include improved conservation farming techniques, erosion control, improved productivity and more organic (and often cheaper) farming systems, and in Africa and Fiji food and firewood self-sufficiency.

One of the key findings from this tour is the problem that private and public agencies have getting buy-in by local people. They have credible strategies and plans, but are often weak on enabling mechanisms to get the people involved. Many countries have the management plans without the Landcare. They told us as much. Landcare is offering a way of harnessing collective local energies and self-interest. It is seen as apolitical, secular, rational and democratic, and it works.

Markets for agricultural products are also a significant problem. It seems that farmer woes are similar world wide - increasing costs, diminishing returns, ever-increasing regulation and controls plus the added responsibility for protecting the environment for the whole community.

## Landcare in Uganda

In Uganda we visited two projects at Kapchorwa, on the slopes of Mt Elgon on the Kenya border.

Landcare in Uganda is being championed by Joseph Tanui, from the World Agroforestry Centre (ICRAF). The Kapchorwa District facilitator Alinyo Francis is the executive officer of the Kapchorwa District Landcare Chapter committee. He supports a team of local farmer volunteer facilitators, who in turn work with their communities.

Issues in these very poor village communities include: declining soil fertility and crop yields; severe hillside erosion from over clearing; chronic shortage of firewood, and drought. Facilitators use 'learning circles' to help villagers adopt improved conservation agriculture practices.

Outcomes from Landcare works include new plant and tree nurseries and the planting of woodlots (using Australian eucalypts and grevilleas which are excellent for firewood and timber but deplete soil moisture), contour farming and trenching to slow water runoff, mulching and organic fertilizer production, improved soil moisture retention practices and improved seed stock for both domestic and marketable crops. One householder is trialling the production of biogas from housed cattle, alternatively called "zero grazing", to run a methane "cow gas" powered domestic cooking system. Barley is being grown as a pilot crop for the brewing industry.

While these are not new technologies, it seems that simple agricultural practices have been somehow lost, in the civil disturbances, war, drought and famine, that have racked Uganda's, and indeed Africa's, recent history.

In Uganda local level facilitators play a dynamic and essential role in Landcare development. They are innovative, technically trained and passionate about conservation agriculture and the Landcare approach. One facilitator, Chemomges Jackson, has effectively turned his own small

farm into a demonstration farm. Initially his neighbors ignored him, but now they want to copy him and learn how to also become self-sufficient in food and firewood.



*Kapchorwa District Landcare Chapter visit (from left): Sue Marriott, Tirwomwe Wilberforce (Kbale facilitator) Bwengye Emmanuel (Budja Budja facilitator), Victoria Mack, Joseph Tanui (AHI – ICRAF Landcare Coordinator, Kampala) and Alinyo Francis (Kapchorwa facilitator)*

Our take home message from the Ugandan Landcare projects was that Landcare is providing a beneficial framework for environmental action, where collective learning is resulting in significant improvements in the livelihoods of some of the world's poorest people – people who are, nevertheless, extremely generous, proud and enthusiastic about their Landcare results.

The improvement of market access is also on the minds of Landcare leaders. They know that without improved infrastructure and market opportunity, economic, social and environmental gains beyond the village farm will be slow.

*The next SILC article will cover Landcare developments in the USA, United Kingdom, South Africa and Fiji.*

## WOCAT Highlights

**Ethiopia** by Daniel Danano, NR for Ethiopia, [ethiocat@ethionet.et](mailto:ethiocat@ethionet.et)



EthiOCAT has planned to prepare an Overview Book on Technologies and Approaches in SWC in Ethiopia. A large amount of work has already been done and is underway in the process of

documenting technologies and approaches of indigenous or introduced origin. So far 40 QTs and 25 QAs have been documented. It was thought from this achievement that preparation of an overview book was feasible and a plan for realizing this was set for the year 2006. In the course of preparing the overview book, review work for quality checking and filling information gaps was needed, for which EthiOCAT used a group made up of major contributors and other experts.

A review meeting/ workshop was conducted from April 3-12, 2006 at Nazareth to check quality and fill in gaps in information collected from Amhara, SNNPR and Harari Regions. The number of participants was 12 from SNNPR, 1 from Harari and 13 from Amhara Region. Another workshop on the overview book was conducted in June 2006.

Achievements: Technologies, approaches and maps were reviewed, quality was checked and gaps were filled. Technologies include: vegetated fanya juu, degraded land rehabilitation, cropland water harvesting, earth checkdams, area closures, soil bunds, Desho-soil bunds, Chat ridge bunds, Dewa-Chefa traditional checkdams, vegetated stone bunds, waterway and graded terraces, stone faced bunds, stone bunds, graded terraces and Dejen traditional bunds. Approaches include: incentive-voluntary participatory planning, incentive-based participatory planning, income generating groups, incentive-based local level participatory planning, participatory watershed management, self help, Debo and social mobilization, and local level participatory planning.

**The Philippines** by Jose D. Rondal [joserondal@yahoo.com](mailto:joserondal@yahoo.com)

## PHILCAT Reorganized

The inter-agency Committee (PHILCAT) that is responsible for the work of WOCAT in the Philippines was reconstituted early this year by a Special Order signed by the Secretary of Agriculture. This was necessary since some of the original members of the Committee are now engaged in other types of work not related to soil and water conservation. The Committee was first formalized in 1999 when WOCAT established a foothold in the Philippines. There are 10 members of the reconstituted Committee with 9 coming from the line agencies of the government and academia. The tenth member is the World Agroforestry Centre (ICRAF). The chairperson and co-chairperson of the Committee are the Bureau of Soils and Water Management and the Forest Management Bureau, respectively. In its latest meeting in April, the Committee agreed to meet once every quarter.

In a related activity, Dr. Jose D. Rondal made a WOCAT presentation in an international conference on watershed management organized by the Institute of Agroforestry and Watershed Management of the Don Mariano Marcos Memorial State University in La Union province on May 16-18, 2006. The conference was an output of a EuropeAid supported project entitled "Strengthening the Institute of Agroforestry and Watershed Management" and was attended by about 100 participants from various sectors. In his presentation, Dr. Rondal emphasized that the WOCAT database provides several options in terms of technologies and approaches for watershed management.

## WOCAT PR materials presented in CSSP and PSST

by Romeo Labios [romylabios@yahoo.com](mailto:romylabios@yahoo.com)

A WOCAT poster, pamphlets and CDs were presented by Dr. Romeo Labios during the 36th Crop Science Society of the Philippines (CSSP) Annual Scientific Conference held May 9-12, 2006 in Puerto Princesa City, Palawan.

The conference was attended by about 254 researchers, faculties, scientists, and local government leaders from different academic, national and international research institutions, private industries, national and local government agencies, and non-government organizations. The same materials were also presented during the Philippine Society of Soil Science and Technology (PSSST) Annual Scientific Conference on June 1-2, 2006 in Central Luzon State University, Muñoz, Nueva Ecija.

**India** by G.B. Reddy, [bhaskar\\_gala@yahoo.com](mailto:bhaskar_gala@yahoo.com)  
**WOCAT initiatives in Orissa in 2006**



Orissa Watershed Mission is currently implementing activities in approximately 2,500 watersheds. The objective of watershed development is to conserve and manage natural resources for livelihood improvement of the watershed dwellers.

There is a wealth of traditional and improved management practices in soil and water conservation and natural resources management in Orissa. These need to be documented and disseminated to a wider audience to improve decisions on identifying an

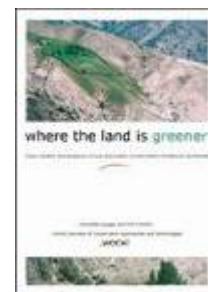
appropriate technology and approach based on local conditions and requirements. This will provide a basket of options in the context of watershed development aiming to provide sustainable livelihoods to the poor and vulnerable through participatory natural resource management and institution building.

The Watershed Development Mission has initiated the documentation of technologies and approaches using WOCAT tools. Watershed Programmes under DANIDA assisted Comprehensive Watershed Development Project (CWDP) and Western Orissa Rural Livelihood Project (WORLP) have already documented some technologies and approaches in the project districts of Malkangiri, Nuapada and Bolangir in 2005. These are:

Technologies and Approaches documented:

- Integrated Farming System technology
- Runoff management structure technology
- Participatory watershed development approach
- Farm pond with contour bund technology
- Participatory sustainable rural livelihood approach
- Contour Trench cum bund technology
- Participatory sustainable rural livelihood approach

**WOCAT Global Overview Book, "Where the Land is Greener", containing full information and analysis of SWC Technologies (43) and Approaches (26) from all over the world, is to be published in the 4th quarter of 2006. More info is available in [www.wocat.org](http://www.wocat.org) and contact [wocat@cde.unibe.ch](mailto:wocat@cde.unibe.ch) for ordering your copies.**



## RESEARCH ABSTRACTS

**ABSTRACT: Assessment of the soil preparation feasibility in Sahelian area (Burkina Faso)**, Albert Barro and Robert Zougomore, Environment and Agriculture Research Institute (INERA), 04 BP8645 Ouagadougou 04, Burkina Faso, Phone: +226-50 44 65 10; Fax: +226-50 34 02 71; [altbarro@yahoo.fr](mailto:altbarro@yahoo.fr)

The soil preparation in the central region of Burkina Faso is for cereal crops, especially millet and sorghum. Because of irregular rainfall, various strategies have been studied, such as the adjustment of the speculation cycle with a seeding deadline and introducing a short-cycle variety. The yields are still quite low because of factors such as land preparation which is often not adapted to the climatic conditions. This work, in the Saria area, was started to study the potential of land preparation techniques such as plowing, scarifying and manual working with the daba. The SARRA model has been used, modified with 67 years of daily rainfall data. With a 0.8 probability, scarifying has a potential for a 16-ton yield if used 16 days before a 15 June seeding deadline. Plowing and manual work with daba present a 10-day potential, giving surface areas of 2.3 ha and 3 ha. Scarifying is the best adaption because the farm average surface area is 4.5 ha and this surface area cannot be covered by plowing before cereal seeding by the other methods. By this method, the farmer will get better production and his production costs will be reduced. The approach of this study is applicable to other operations in order to better target the best technique for the farmer.

**ABSTRACT: Wind Erosion Control with Scattered Vegetation in the Sahelian Zone of Burkina Faso**, PhD thesis of Jakolien K. Leenders ([j.leenders23@chello.nl](mailto:j.leenders23@chello.nl)), Tropical Resource Management Paper No. 73, Department of Environmental Sciences, Erosion and Soil Conservation Group, Wageningen Univ. and Research Centre, Wageningen, Netherlands. 2006. 170 pp. ISBN: 90-8585-059-2, ISSN: 0926-9495, [www.dpow.wau.nl/eswc](http://www.dpow.wau.nl/eswc). Contact: Jolanda Hendriks, [jolanda.hendriks@wur.nl](mailto:jolanda.hendriks@wur.nl)

The Sahelian zone of Africa is the region that is globally most subjected to land degradation, with wind erosion being the most important soil degradation process. By using control measures, the negative effects of wind erosion can be reduced. At present, adoption of wind erosion control measures by Sahelian farmers is low, as most recommended measures do not fit into the farming systems. Therefore, the possibilities of using the local agro-forestry system, i.e. scattered vegetation of trees and shrubs as a wind erosion control strategy, were explored in this study. The study area was located in the Sahelian zone of Burkina Faso. A survey among farmers revealed that they generally have a good knowledge of wind erosion processes and the possible wind erosion protection by natural vegetation. Detailed field measurements of wind speed and sediment transport revealed that the fluctuations in horizontal wind speed mainly cause wind erosion. Measurements around isolated vegetation elements revealed that these elements reduce wind speed and sediment transport, and they are effective in trapping material already in transport. The effectiveness in reducing wind speed and sediment transport of scattered vegetation depends on the number of vegetation elements,

the type of vegetation element and the height, width and porosity of the canopy of the element. A model was developed to simulate field-scale wind erosion with different types and arrangements of vegetation elements. This model can be used to develop optimal vegetation cover densities and spatial arrangements for wind erosion control. Overall it can be concluded that the use of the local agro-forestry system as a wind erosion control strategy is promising.

**ABSTRACT: People and Dams: environmental and socio-economic changes induced by a reservoir in Fincha'a watershed, western Ethiopia**, PhD thesis of Bezuayehu Tefera Olana ([bezuayehto@yahoo.com](mailto:bezuayehto@yahoo.com)), Tropical Resource Management Paper No. 75, Department of Environmental Sciences, Erosion and Soil Conservation Group, Wageningen Univ. and Research Centre, Wageningen, Netherlands. 2006. 139 pp. ISBN: 90-8585-063-0, ISSN: 0926-9495, [www.esw.wur.nl](http://www.esw.wur.nl), Contact: Tony Sijm, [tony.sijm@wur.nl](mailto:tony.sijm@wur.nl)

Dams that store water for electricity, irrigation, domestic water supply or flood control have been constructed worldwide for thousands of years. In too many cases, an unacceptable and often unnecessary price has been paid by watershed inhabitants to secure dam benefits, especially in social and environmental terms. The Fincha'a multipurpose dam in western Ethiopia has caused major land use changes, relocated people against their will and induced excessive population pressure in the upper watershed. Following the creation of this dam, crop and livestock production have been shifted to steep and fragile parts of the watershed. Lack of agricultural intensification and soil and water conservation (SWC), poor family planning and land tenure insecurity are pressing socio-economic problems leading to impoverishment of the watershed inhabitants. Increased erosion rates and sediment yields reduce the economic life of the dam. Farmers are well aware of erosion problems but they lack confidence in the positive effect on crop yield of recommended SWC measures. The high labour requirement, loss of cropland, land tenure insecurity and the lack of immediate benefits have negatively affected SWC adoption. Integrated watershed management (IWM) has emerged as alternative to the centrally and sectorial approaches in planning dams. The focal point of any dam development program, using IWM, is the combination of improving the livelihood of the watershed inhabitants and the sustenance of the resource base. For subsistence farmers it is mainly the production in the current season that guarantees the mere survival of their families. Therefore, IWM should be accompanied by the creation of multi-stakeholder platforms and integration of soft and hard system methodologies for creating an environment where science and knowledge help people to develop a diversity of

locally appropriate resource management solutions. IWM can effectively address the social, environmental and economic problems during the planning of new dams in Ethiopia.

**ABSTRACT: Survival or Accumulation: Migration and rural households in Burkina Faso**, PhD thesis of Fleur Stepanie Wouterse ([fleur.wouterse@wur.nl](mailto:fleur.wouterse@wur.nl)), Tropical Resource Management Paper No. 79, Department of Social Sciences, Development Economics Group, Wageningen Univ. and Research Centre, Wageningen, Netherlands. 2006. 160 pp. ISBN: 90-8585-061-4, ISSN: 0926-9495, [www.socialsciences.wur.nl/dec](http://www.socialsciences.wur.nl/dec)

Migration plays an important role in development and as a strategy for poverty reduction. Burkina Faso, a country where conditions for agriculture are far from favourable, has a long history of migratory movement. Migration within West Africa (continental migration) has long taken place in response to drought and low agricultural productivity. Migration to destinations outside the African continent and in particular to Western Europe (intercontinental migration) has become more important over the last decades for migrants from Burkina Faso. This study provides a quantitative analysis of the determinants and effects of migration for rural households in four villages on the Central Plateau of Burkina Faso. It sheds new light on the migration-remittances-development debate by analyzing migration from a whole-household perspective combining determinants and consequences of migration; by including both the production and the consumption side of the rural household economy in an imperfect market environment; and by allowing for heterogeneity in migration through a distinction of two different migratory movements: continental and intercontinental migration. An extended farm household model that includes a migration component forms the basis of the econometric analysis of cross-section data from 223 households. Findings reveal that the two migratory movements are indeed different strategic decisions. Households with intercontinental migrants are able to overcome entry constraints that exist for this more lucrative (in terms of remittances) form of migration because of their wealth. In an imperfect market environment remittances from intercontinental migration help these households to overcome entry constraints existing for other activities and to greatly improve their welfare. Continental migrants appear to be pushed out due to insufficient land and consumption pressure. Loss of labour negatively influences income generated in labour-intensive activities and household welfare only slightly improves due to the migration-induced reduction in household size.

## SUMMARY REPORTS

**The 15th Organic World Congress of the International Federation of Organic Agriculture Movements (IFOAM)** Unites the Organic World in Adelaide, Australia, September 20-23, 2005

The international organic community converged on Adelaide, for the 15th IFOAM Organic World Congress "Shaping Sustainable Systems," organized by the National Association for Sustainable Agriculture, Australia (NASAA). With more than 1,000 delegates from 72 countries the result was a Congress Declaration calling upon governments worldwide to actively endorse and practically support organic agriculture. It also called on individual governments to allocate budgetary funds proportionate to the organic

sector's production in their countries; to internalize social and environmental costs in the prices of agricultural products; and to remunerate organic farmers for the ecosystem services they provide.

Gunnar Rundgren, IFOAM President, noted in his opening speech that a 22-year farming trial study from Cornell University has shown organic agriculture to be more productive than conventional methods (<http://www.news.cornell.edu/stories/July05/organic.farm.vs.other.ssl.html>). In his keynote speech, Australian Senator the Hon. Richard Colbeck, Parliamentary Secretary for Agriculture, Fisheries and Forestry, emphasized the high demand for organic produce in Australia, while Andre Leu, Chair of the Organic Federation of Australia noted that, while 20,000 farmers have been lost in the last decade, the

number of organic farmers continues to increase. Gerald A. Herrmann, IFOAM Vice President, explained that Australia now accounted for 42.7% of the global total of farms under organic management.

The 8th International IFOAM Organic Viticulture and Wine Conference also brought together the world's experts on organic wine to discuss challenges and opportunities for product and market development. The International Scientific Conference on Organic Agriculture, organized by ISOFAR, the newly established global scientific research authority for organic agriculture discussed the latest research and technical advances in organic agriculture.

The IFOAM General Assembly, the democratic decision making forum for IFOAM, took place on September 25-27. Important decisions affecting the future of the organic industry and its \$26 billion market were made, including the approval of the revised Principles of Organic Agriculture ([http://www.ifoam.org/press/press/Principles\\_Organic\\_Agriculture.html](http://www.ifoam.org/press/press/Principles_Organic_Agriculture.html)), the election of the IFOAM World Board of Directors and the consideration of wide-ranging motions from the IFOAM membership.

The complete text of the Adelaide Declaration can be found at [www.ifoam.org/events/ifoam\\_conferences/pdfs/Adelaide\\_Declaration.pdf](http://www.ifoam.org/events/ifoam_conferences/pdfs/Adelaide_Declaration.pdf)

- Rhodri Thomas, Environmental Consultant, Via Cavoir 221, 00184 Rome, Italy. [rhodri\\_p.thomas@hotmail.com](mailto:rhodri_p.thomas@hotmail.com)

### **Eleventh Session of the Conference of the Parties to the UN Framework Convention on Climate Change (COP 11) and First Meeting of the Parties to the Kyoto Protocol (COP/MOP 1), Montreal, Canada, November 28-December 10, 2005**



In two weeks of talks, delegates to the UN Climate Change Conference in Montreal concluded the decade-long round of negotiations that launched the Kyoto Protocol and opened a new round of talks to

begin considering the future of the international climate effort.

Key outcomes of the Montreal conference included decisions by the COP/MOP finalizing the Kyoto "rulebook" and strengthening the Clean Development Mechanism, and a pair of decisions to consider next steps – one under the Protocol, launching negotiations toward new binding commitments for Kyoto's developed country parties; and another under the Framework Convention, opening a nonbinding "dialogue on long-term cooperative action."

The European Union, Japan and Canada, obligated under Kyoto to begin considering new commitments, strongly favored a parallel process under the Convention as a way to engage both the United States and developing countries in future efforts. After considerable discussion, the US negotiators relented to this decision, following some action by the US Congress to re-engage the US in the climate change discussions.

One notable shift in Montreal was a greater willingness among developing countries to discuss stronger developing

country efforts. Several called for new mechanisms or agreements supporting voluntary developing country actions with market or other incentives.

Comments from the condenser: This summary captures most of what went on. The meeting did not achieve any major breakthroughs, but was mostly a stepping stone towards the next round of negotiations. See also [http://unfccc.int/meetings/cop\\_11/items/3394.php](http://unfccc.int/meetings/cop_11/items/3394.php).

The next meeting, COP 12, will take place in Nairobi, Kenya from November 6-17, 2006, more info in [http://unfccc.int/meetings/cop\\_12/items/3754.php](http://unfccc.int/meetings/cop_12/items/3754.php).

- Condensed by Julian Dumanski, 16 Burnbank St., Ottawa, Canada K2G 0H4, Tel. 613-226-3911, [jdumanski@rogers.com](mailto:jdumanski@rogers.com)

### **18th World Congress of Soil Science, Philadelphia, PA, USA, July 9-15, 2006**

The 18th World Congress brought together well over 2,000 soil scientists from all over the globe, presenting thousands of posters and hundreds of oral papers. Above all, it showed that soil science is thriving. A series of reports will appear in IUSS Bulletin 109 (October 2006 – see [www.iuss.org](http://www.iuss.org)) and some are on the IUSS and the 18th WCSS website. Roger Swift and Neal Menzies (both from Australia) are the new president and vice president, whereas Stephen Nortcliff (UK) and Alfred Hartemink (Netherlands) have been re-appointed as Secretary General and Deputy Secretary general, respectively.

New Division Chairs of IUSS elected at the 18th World Soil Congress. The four IUSS Division chairs elected are:

Division 1. - Soil in Space and Time

Ahmet Mermut from Canada. [mermut@skyway.usask.ca](mailto:mermut@skyway.usask.ca)

Division 2. - Soil Properties and Processes

Ruben Kretzschmar from Switzerland.

[kretzschmar@env.ethz.ch](mailto:kretzschmar@env.ethz.ch)

Division 3. - Soil Use and Management

Wolfgang Burghardt from Germany.

[wolfgang.burghardt@uni-essen.de](mailto:wolfgang.burghardt@uni-essen.de)

Division 4. - The Role of Soils in Sustaining Society and the Environment

Oene Oenema from the Netherlands.

[oene.oenema@wur.nl](mailto:oene.oenema@wur.nl)

The division chairs lead the 4 main soil science themes of the IUSS. Each division has 4 to 6 commissions. All officers are listed on the IUSS website [www.iuss.org](http://www.iuss.org). If you plan a soil science activity fitting one or more of these themes please contact the division or commission officers for further cooperation.

The following soil scientists were elected IUSS Honorary Members: Winfried Blum (Austria), Hans-Peter Blume (Germany), Johan Bouma (Netherlands), S-J. Cho (Korea), Jan Gliński (Poland), Marcel Jamagne (France), Don Nielsen (USA), Hans van Baren (Netherlands) and Larry Wilding (USA). Rattan Lal (USA) received the Von Liebig Award, Victor Targulian (Russia) the Dockuchaev Award, Herman Mucher (Netherlands) the Kubiena Medal, and Alex McBratney (Australia) the Webster Medal.

- Alfred Hartemink, ISRIC, Wageningen, Netherlands. [alfred.hartemink@wur.nl](mailto:alfred.hartemink@wur.nl)

# PUBLICATION REVIEW

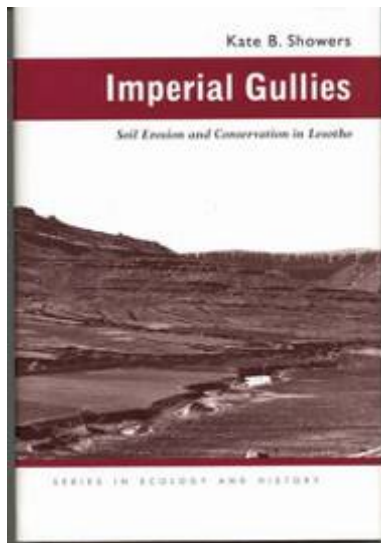
## 'IMPERIAL GULLIES – SOIL EROSION AND CONSERVATION IN LESOTHO',

by Kate B. Showers, visiting research fellow and senior research associate at the Centre for World Environmental History, University of Sussex, UK

Published in 2005 by Ohio University Press, Athens, Ohio, USA. ISBN 0-8214-1613-8 (hbk, US\$55) 346pp; 0-8214-1614-6 (pbk – US\$26.95). Order to: Ohio University Press, The Ridges, Building 19, Athens, OH 45701. Phone: +1-740-593-1154 or +1-740-593-1160; Fax: +1-740-593-4536; [jwilson1@ohio.edu](mailto:jwilson1@ohio.edu). In UK, order to Eurospan Group, c/o Turpin Distribution, Pegasus Drive, Stratton Business Park, Biggleswade, Bedfordshire SG18, 8TQ, UK. Phone: +44 (0) 1767 604972; Fax: +44 (0) 1767 601640; [eurospan@turpin-distribution.com](mailto:eurospan@turpin-distribution.com) (hbk: £38.50; pbk: £18.95). In Asia, Pacific, Australia, NZ, order to Royden Muranaka, East-West Export Books, c/o The University of Hawaii Press, 2840 Kolowalu Street, Honolulu, HI 96822, Phone: +1-808-956-8830; Fax: 808-988-6052; [eweb@hawaii.edu](mailto:eweb@hawaii.edu) (same US\$ prices as above)

### A review-essay by Francis Shaxson, [fshaxson@aol.com](mailto:fshaxson@aol.com)

This eloquent and thought-provoking book provides an unusual and very interesting landscape – history, analysis and discussion of all aspects of the ongoing and serious soil erosion problem in Lesotho. The country is a small, mainly



mountainous, politically-independent kingdom in southern Africa whose natural environment has become increasingly unstable through the combined effects of aggressive climate, erodible rocks and soils, tillage agriculture, imposition of an inappropriate and damaging soil conservation technology in the past, and ever-rising pressures from population increase.

Deep square-sided gullies were noted back in the 1880s, cutting through the perennial vegetation which clothed the country. But with cultivation agriculture expanding, by 1935 the erosion situation had become so alarming, after a catastrophic drought broken by torrential erosive rains, that the government of the British-administered Basutoland Protectorate, using the technical knowledge available at the time and with the best of intentions, initiated a 'demonstration' program of engineering works – chiefly conservation banks and waterways. This continued through a period of the Great Depression of the 1930s, and the whole of World War II 1939-45. With follow-on programs, by the time of political independence in 1966 these works had been applied on some 220,000 ha, a significant proportion of the 28% of the country's land area which is considered possible for some cultivation. These programs were not successful in halting erosion, and the works themselves in many situations provoked, at their outlets, even more self-perpetuating gullies.

Dr. Showers, a soil scientist by training, has investigated the history of human interactions with this particular landscape by making use of anthropology's participant observation, geomorphological and soil science field study, and evidence from archival and oral historical research. Her underlying belief throughout the 25 years of undertaking this work has been that "an assessment of the past should inform the present as to how better to operate in future" (p. 312). In uncovering the complexities of the inter-penetrating environmental, social, political, and economic dimensions of soil erosion in Lesotho, she found that "none could be understood in isolation, and a historical approach was found

to be the only method by which all could be examined at once" (p. 312). The result is this fascinating book, which has implications for many other countries as well.

In this study she highlights two major concerns. The first is that the Basotho have frequently been unjustly blamed for the failure to control soil erosion. The second is that, despite obvious failure of the soil conservation programs, the soil conservation policies of government and (after Independence in 1966), also those of certain aid agencies, did not change for 50 years.

Why? Dr. Showers points out that, although the early books written on the subject – such as those of Ayres (1936) and Bennett (1946) – developed recommendations from observation and research in 'the spirit of science', the whole subject of applying what now is often sloppily dubbed 'SWC' had subsequently turned into an almost unassailable ideology with its own inbuilt momentum, characterized in many countries even today by lack of specific enquiry into (1) whether the programmes had the desired effects, and if not, then why not, or/and into (2) what well-proven different approach, if any, could lead to positive and acceptable success. The researches of e.g. Norman Hudson in (then) S. Rhodesia in the 1960s and early 1970s provided increased technical understanding of the erosion process and its control. By the early 1970s in Malawi it was clear to us all that the 'conventional' soil conservation paradigm was inappropriate and inadequate in both socioeconomic and agro-ecologic terms. But at that time, none of us got much beyond emphasizing vegetative/biological approaches, as compared with physical works, for erosion prevention and control.

It was not till 1982, when Geoff Downes visited Brazil as a consultant for FAO, that in a 'Eureka! moment' I became fully aware of the ecological background to understanding land degradation, and thence of a different approach to avoiding and repairing it. He brought understanding from his own work during earlier years in Australia, but these principles do not appear to have been widely known elsewhere. [Extracts from his consultant's report have recently been put on the WASWC website, under the Proceedings paper entitled 'Principles of Good Land Husbandry']. This highlights a particular problem of former times: that of slow transfer of relevant information in the days before ease of air travel and the internet.

From the late 1970s onwards, farmers and their advisers in (most notably) Brazil – which had been having formidable erosion problems of its own – have been developing systems of agricultural production based on rotations including legumes, least disturbance of soil in good condition, and direct-drilling through mulch from the previous crop. The very encouraging results of cross-fertilization of the originating farmers' own experiences with relevant research and feedback illustrate clearly the operation of these basic ecologic principles underlying good land husbandry. The success of these 'direct drilling' systems – in terms of improvements in rural livelihoods, in agro-ecology,

sustainability of production, improved hydrology and almost complete elimination of erosion problems – has been spreading rapidly (10,000 ha to 14 million ha in 30 years). This has mainly occurred by farmer-to-farmer contact, and latterly also through FAO of United Nations encouraging development of appropriate related 'Conservation Agriculture' systems in other countries.

But most countries' policies on agricultural matters, including those on soil and water conservation, often seem to appear 'from on high' and often to be based on great sweeps of good intentions and economic theory. Whether the resulting policies are effective or beneficial at the field level depends very much on how farmers, with whatever size of landholding, respond and react to them. In turn, these reactions ultimately affect the soil itself, at the microscopic scale of the features – physical, chemical, biologic, hydric – which interact and govern the soil's productivity of water and plants, on which we all ultimately and completely depend. Macroscopic theories and good intentions need urgently to be informed by the voices of farm families and the microscopics of ecological reality, as indicated by the tenets of good land husbandry.

I met Kate Showers while I was working in Lesotho in 1988/9, but had little chance to discuss the work she was doing. But at that time her findings, and the suggestions of others, were indicating the possibilities that this altered understanding and approach might offer in the Lesotho context. Now, having read her book, I find that thoughts which it has provoked include four questions which I can't answer:

1. With what anyone (both Basotho and expatriate British) knew in the 1930s when the soil erosion control program began, what else could have worked better – or alternatively,

should the possible option of 'do nothing' have been considered?

2. We can't turn the clock back. But we now have the wealth of information provided by Dr. Showers, Dr. Chakela and others familiar with the country, and by yet others who have relevant information from elsewhere, plus the insights provided by ecological principles of good land husbandry.

In the 1930s or later would it have been better to have severely restricted tillage agriculture to the very limited 'safe' areas unlikely to exhibit erosion, and to have insisted on management of the rest of country primarily for livestock production from well-managed perennial grazing lands? If so, what number of Basotho could such a situation have been able to support, and at what standard of living, in perpetuity?

3. Given that the human population of Lesotho is stated to have increased from 901,000 in 1963 to 1,802,000 in 2003 (FAO statistics), can anyone suggest how the ecological characteristics and processes of the country's human society can be brought into lasting harmony with the ecological characteristics and processes of the landscape?

4. Have we Non-Farm Agriculturists contributed more to stabilizing the Earth's life-supporting ecosystems than our personal lifestyles have to destabilizing them?

Think about it.

This book is not just an historical record but is also 'a good read'. Once begun, you may find it hard to put down. People in countries other than Lesotho with interest in problems relating to runoff, soil erosion and falling productivity of soils will find much of interest, and much to be concerned about, in this valuable addition to the literature on this subject. - T.F.S., March 13, 2006

## Short News on Conservation-Environment

(Mainly about Climate Change in this issue)

Edited by S.K. Sharma, Environmental Educator, 24 National Road, Dehradun 248001, Dehra Dun, India.

[sk105@rediffmail.com](mailto:sk105@rediffmail.com)

### Scientists Breed Rice to Defy Climate Change, Reuters (060412)

LOS BANOS, Philippines — Three billion people, many of them in Asia, rely on rice to feed themselves and the International Rice Research Institute (IRRI) is developing rice lines that are tolerant of drought, and has just begun research on rice that could withstand high temperatures. The institute, credited for helping the world feed itself by developing high-yielding rice during the so-called Green Revolution of the 1960s, is also helping with work on genetically modified Vitamin A enriched rice or "golden rice" which was developed by European scientists by implanting two genes from a daffodil and one from a bacterium into japonica rice variety called T309. Samples of the grain were donated to the institute for research and breeding.

### China Makes Artificial Rain for Beijing, Xinhua News Agency (060505)

Chinese weather specialists used chemicals and fired seven rocket shells containing 163 cigarette-size sticks of silver iodide over the city's skies to engineer Beijing's heaviest rainfall of the year, helping to relieve drought and rinse dust from China's capital. The reaction that occurred brought as much as 10 mm of rain, the heaviest rainfall this year, helping to "alleviate drought, add soil moisture and remove dust from the air for better air quality." Whether cloud-seeding actually works has been the subject of debate in the scientific community. In 2003, the US National Academy of Sciences questioned the science behind it as "too weak."

### China Struggles to Stop Its Largest Lake Shrinking: Reuters (060525)

ERLANGJIAN, China — Lake Qinghai, holy to ethnic Tibetans, is shrinking, hit by declining rainfall and desertification partly caused by overgrazing. Some also blame global warming. Over the past three decades, water levels have dropped almost 13 feet. Perched more than 10,000 feet above sea level, the salt water lake is more than 60 miles long, but the number of rivers feeding it has halved in the past 50 years and salinity has risen markedly. Other Chinese lakes face similar problems. In Qinghai, the situation seems so serious that the Erlangjian sand spit now appears to be a permanent feature of the lake. China is the second largest emitter of greenhouse gases after the United States. Despite recent pledges to make its economy more sustainable, the country burned nearly 6.5 million barrels of oil per day in the first quarter of 2006, releasing vast quantities of heat-trapping carbon dioxide into the atmosphere.

### EU Urges Europeans to Act Locally to Help Stop Global Warming, AP (060530)

BRUSSELS, Belgium — The European Commission President Jose Manuel Barroso said that every European citizen is responsible for 11 tons of greenhouse gas emissions, mainly carbon dioxide, per year. Most of those emissions are caused by the production and use of energy, around 61%, it said, followed by transport, 21%, both of which use fossil fuels, like coal, gas and oil, that release

carbon emissions when burned. The EU awareness campaign, which encourages people to "Turn down. Switch off. Recycle. Walk," on posters, will be launched in each member country in the coming days. Tips being used in the campaign can also be downloaded from a special EU Web site - <http://www.climatechange.eu.com>

### **Prototype Toilets Aim to Flush away Beijing Drought,** Reuters (060608)

BEIJING — The Saving Water Toilet Exhibition for Beijing Olympics Gymnasium showcased a range of prototype urinals, bowls, and traditional Asian crouching platforms aimed at having a more positive impact on the environment. Also on display was a toilet in which 500 liters of water could be recycled for use for up to six months and facilities that use bacteria to break down the waste into gas and clean water. It's important for the Olympics because the athletes and coaches from around the world will see that China is serious in trying to save water and will spread the word. Beijing Olympic organizers have made "Green Olympics" one of their core themes and it is expected the environmentally friendly toilets will play their part.

### **UN Scheme to Save One Billion Tons of Greenhouse Gas,** Reuters (060612)

OSLO — UN's Kyoto Protocol meant to combat global warming by curbing fossil fuel use, has more than 800 projects such as wind farms in India or power plants burning sugar cane waste in Brazil and will axe emissions of greenhouse gases by more than a billion tons by 2012. Annual world greenhouse gas emissions from human activities - mainly from fossil fuels burnt in power plants, vehicles and factories - exceed 25 billion tons. About a quarter is from the United States. The secretariat said more than 200 green energy projects had now been approved under the program, known as the Clean Development Mechanism (CDM), with about 600 others in the pipeline. Under the CDM, rich nations can invest in renewable energy projects in developing nations

### **Climate Change Brings New Options for UK Farming** (060703)

Climate change provides many new opportunities for British farmers, like tea and energy crops, but also poses challenges including the threat of new insects and diseases, a British government junior Environment Minister Ian Pearson said. Crops such as grains and oilseeds can be grown to produce motor fuels bio-ethanol and bio-diesel which are substitutes for fossil fuels. Biofuels are expected to help reduce the greenhouse gases which have been linked to climate change. He said there was a need to reach an international agreement on climate change with key countries such as the United States, China and India.

### **Who's to Blame for Global Warming?** Center for International Climate and Environmental Research (060703)

OSLO, Norway — During the negotiations that led up to the Kyoto Protocol, the Brazilian delegation proposed that the emissions targets of the industrialized countries be based on their historical contributions to global warming ("the Brazilian Proposal"). Countries that had contributed substantially to climate change would thus be given more stringent targets than those with smaller contributions. This burden-sharing approach is a challenge — both methodologically and politically. If we choose change in global mean temperature in the year 2000 as the climate change indicator and the years 1890-2000 as the attributable emissions time period, and if we include all anthropogenic emissions sources (including deforestation) for all "Kyoto gases", CICERO's calculations give the following contributions to global warming: OECD countries — 38%; Eastern Europe and the

former Soviet Union — 14%; Asia — 26%; Africa and Latin America — 22%. The calculations show a risk that developing countries will be given a greater allocation burden than they can handle, relative to developed countries.

### **Program Lets Forests Grow Longer to Combat Global Warming:** AP (060711)

SACRAMENTO — Californians could soon invest in trees to offset the greenhouse gases they pump into the air when they heat their homes or drive to work. Scientists blame emissions of carbon dioxide and other gases for helping cause global warming, which researchers predict will lead to stronger storms, more severe droughts and bigger wildfires. The utility pumps about 5.3 tons (4.8 metric tons) of carbon dioxide into the atmosphere each year to supply the electricity and natural gas used by a typical household. If the homeowner opted to pay about \$4.31 (Euro 3.40) each month to be invested in forests, the trees would store an equivalent amount of carbon. The Forest Protocols program will allow environmentally minded citizens to pay to preserve enough trees to offset their personal carbon emissions.

### **Are We Really Doing All We Can to Save Our Water Resources?** [www.riverworks.net](http://www.riverworks.net) (060711)

LIVINGSTON, Mont. — River Works research shows there are literally hundreds, if not thousands, of specific, stream assessment methods out there, each developed for a specific point in time, to address a specific problem. "The trouble with all of these different protocols is that we have loads and loads of data, but most of it is not comparable over space and time in order to properly inform policy or management decisions," says Sprague who is heading up two companies, one an aquatic-restoration design/build firm, the other a water resource-related technology company. Both companies strive for better, more standardized, more sustainable techniques for preserving and restoring freshwater ecosystems. "Nature has a great ability to naturally filter and store water. Preserving the health of our streams and rivers is obviously critical to our survival. The time to act is now. It makes sense to be asking ourselves if we really are doing all we can," says Sprague.

### **Global Warming Puts Twelve US Parks at Risk:** Reuters (060726)

Most climate scientists believe Earth's surface temperature has risen over the last century, spurred by human activities that produce greenhouse gases, which trap heat like the glass walls of a greenhouse. Global warming puts 12 of the most famous US national parks at risk, conjuring up visions of Glacier National Park without glaciers and Yellowstone Park without grizzly bears. All 12 parks are located in the American West, where temperatures have risen twice as fast as in the rest of the United States over the last 50 years, viz: Bandelier National Monument, New Mexico; Death Valley National Park, California; Glacier National Park, Montana; Glen Canyon National Recreation Area, Utah and Arizona; Golden Gate National Recreation Area, California; Grand Teton National Park, Wyoming; Mesa Verde National Park, Colorado; Mount Rainier National Park, Washington state; North Cascades National Park, Washington state; Rocky Mountain National Park, Colorado; Yellowstone National Park, Wyoming, Montana, and Idaho; Yosemite National Park, California.

### **Texas, Illinois Vie for Near-Zero-Emissions Coal Power Plant Project:** AP (060726)

DALLAS — Texas and Illinois will compete for the world's first near-zero-emissions coal power plant. The project dates to 2003 when President Bush announced the need for FutureGen (a power plant designed to turn coal into a hydrogen-rich gas to produce electricity for about 275,000

single-family homes) to address global warming and touted technologies that would capture carbon dioxide for other uses. Those include fertilizers or liquefying the gas to inject it into old oil wells and push remaining oil or natural gas to the surface. The process would not release into the atmosphere pollutants usually associated with coal-burning plants, such as carbon dioxide. Scientists have blamed the burning of fossil fuels as one of the main causes of global warming. Sites in Mattoon and Tuscola in Illinois and near Odessa and in Jewett in Texas, beat out eight other candidates. The winner will be announced in September 2007 and will be operating a facility deemed the "ultimate power plant" almost 5 years later.

### **US Power Group Promoting Global Warming Skeptic:** Reuters (060728)

NEW YORK — A Colorado electricity cooperative is urging other power groups to support global warming skeptics and has donated \$100,000 to a climatologist who has labeled some of his colleagues "alarmists". Many scientists believe that global warming will lead to catastrophic consequences such as the flooding of low-lying nations and stronger hurricanes. Power plants emit 40% of the world's carbon dioxide, the main gas that most scientists believe causes global warming. Coal emits more CO<sub>2</sub> than other fuel. Many power companies are watching the federal government's every step on global warming.

Any future national plan in the United States, the world's top emitter of greenhouse gases, to regulate such gases could force many companies to shut coal-fired generation or add expensive carbon-capturing devices to their equipment.

### **Major World Cities Team Up to Fight Global Warming:** Reuters (060802)

LOS ANGELES — Launched by former President Bill Clinton's foundation, Los Angeles, London, New York, Seoul and 18 other cities joined forces in a global warming project aimed at reducing greenhouse gas emissions. The initiative will allow cities to pool their purchasing power and lower the price of energy-saving products and provide technical assistance to help them become more energy efficient. Urban areas are responsible for more than 75% of all greenhouse gas emissions, making reduced energy crucial in the effort to slow the pace of global warming. Energy-efficient traffic lights, street lighting, the use of biofuels for city transport, and traffic congestion schemes were some of the practical steps that cities are expected to take to reduce greenhouse gases.

### **Pacific Mangroves Disappearing under Rising Seas:** Reuters (060802)

SYDNEY — A UN Environment Programme (UNEP) report looking at the impact of rising seas on mangroves in 16 Pacific nations found the global warming could lead to the destruction of more than half the mangrove wetlands of some Pacific islands, wiping out or reducing marine breeding grounds that support multi-million dollar fisheries and the worst hit-islands would be American Samoa, Fiji, Tuvalu and the Federated States of Micronesia. Mangroves also protect islands from flooding during storms, with mangroves estimated to reduce wave energy by 75%, said the report. An estimated 75% of commercially caught prawns in Australia's tropical state of Queensland depend on mangroves. In Matang, Malaysia, a 400 sq km (154 sq miles) managed mangrove forest supports a fishery worth US\$100 million a year.

### **House Report Calls for Changes to Environmental Law:** AP (060802)

WASHINGTON — Republican leaders have been looking for ways to streamline the 36-year-old National Environmental Policy Act, or NEPA, which serves as the basis for federal

management of public lands. The task force recommended at least 20 changes to a landmark environmental law, but did not present draft legislation, and GOP (Grand Old Party – the Republican Party) leaders say they do not expect to offer a bill this year. The 23-page report, prepared by Republican staff of the House Resources Committee, recites a familiar litany of complaints, mostly involving delays associated with NEPA. The report notes that speakers at a series of public hearings said that lawsuits, or even threatened lawsuits, often add years and millions of dollars to a new road, housing development or logging project.

### **Seattle's Green Mayor Brings Kyoto to the Backyard:** Reuters (060804)

SEATTLE — As the mayor spearheading a drive to get US cities to sharply reduce greenhouse gas emissions, Greg Nickels is proposing a host of "green" initiatives, like urging Seattle dwellers to build rental units in their backyards to stem city sprawl and get people to live closer to downtown. Nickels is the mayor who first urged US cities to adhere to the targets of the Kyoto Protocol, the 164-nation agreement to cut greenhouse gas emissions. President Bush pulled the United States out of the treaty in 2001. Another prominent West Coast politician, California's Republican Gov. Arnold Schwarzenegger, took a similar stand as the Democrat Nickels, accusing the federal government of lacking leadership on the environment. The United States is the biggest producer of greenhouse gases, with a quarter of the world total.

### **World Bank Fine Tunes Clean Energy Funding Proposal:** Reuters (060815)

WASHINGTON — A World Bank proposal to its steering committee to create two new funds to help developing countries generate cleaner, more efficient power is misguided because it backs fossil fuel projects, some experts opined. However, "Renewable energy technologies are the best option to reduce poverty by providing access to modern energy for the rural poor," said Peter Bosshard, policy director at International Rivers Network, a nongovernmental organization. The World Bank said it committed \$871 million in renewable energy and energy efficiency programs in the year that ended in June. Nuclear power generation, which caused some controversy in the original report, is mentioned less frequently in the latest version but remains on the table for funding proposals, said Daphne Wysham of the Institute for Policy Studies.

### **Dutch Greenhouse Gas Emissions Now at 1990 Levels:** AP (060905)

AMSTERDAM, Netherlands — Greenhouse gas emissions in the Netherlands fell by around 2% in 2005 from a year earlier and were at approximately the same level they were in 1990, a government agency said Monday. The statistics agency said that total Dutch emissions were 214 billion kilograms of carbon dioxide or equivalents, down 2% from 2004 and just fractionally higher than 213 billion kilograms in 1990. The Netherlands agreed to reduce its emissions to 5% below 1990 levels by 2010. The fall from 2004 was due to carbon dioxide emissions saved by increased use of biomass fuel for electricity generation, by households using less energy for heating during a warm winter, and by increased import of electricity, each of which has a downside.

### **Europe, Asia Pledge to Cut Emissions:** AP (060912)

HELSINKI, Finland — European and Asian leaders pledged to keep cutting greenhouse gases after the UN's Kyoto Protocol expires in 2012. German Chancellor Angela Merkel said "In comparison to 10 years ago, now all countries recognize that climate change is an important issue, that we must continue Kyoto, that the time after 2012 must be in our

sights and that we must do everything possible to improve energy efficiency and, at the same time, facilitate economic growth. Washington abandoned the Kyoto treaty, saying it would hurt the US economy. The commitment of Europe and Asia to continue with cuts in greenhouse emissions

appeared designed to pressure the United States into a more activist role on climate change than the administration of President Bush has displayed to date.

## Miscellaneous

### TAKE A BREAK

Joe Rondal sent the following to us from the Philippines: **Put things into perspective**, Click <http://waswc.ait.ac.th/take-a-break.html> and then the line **Put things into perspective**

### Charity



It's Amazing

#### SOOF EMBROIDERY

This amazing piece of embroidery is hand made using traditional embroidery patterns inherited by a group of 150 women artisans residing in a place called Shivnagar in Gujarat, India. In soof embroidery the surface satin stitch is worked from the reverse side of the fabric using careful counting of warp and weft threads of the fabric. As no patterns are used the artisan needs skills and imagination to guide the embroidery as she mentally pictures motives and composition, then counts the patterns out and works it from the reverse. The stitch appearing on the main surface is often between 0.25 and 0.5 cm long. Successive stitches are only one thread of the fabric weave apart, which makes for a dense patterning.

### Inside CFM



CFM has a new look bulk sales. Click here to [view](#).



### SuVyapar

Pachamama-A World of Artisans is a Fair Trade organization dedicated to working towards economic justice through educating consumers about the importance of purchasing Fair Trade products. Pachamama means Mother Earth. It is from the Quechua language which is spoken by the Quechuan people in the Andean region of Latin America. The Quechuan people honor Pachamama's power and good humor towards people and their necessities, which is one of the main aspects of survival in the Andean region with its harsh climate. By promoting conscious consumerism Pachamama wants to foster Fair Trade relationships with artisans worldwide, educating the consumer about the high quality products these artisans create and selling them. To know more [click here](#).

### Few Wise Words

"Strength does not come from winning. Your struggles develop your strengths. When you go through hardships and decide not to surrender, that is strength." *Arnold Schwarzenegger*

"The ultimate measurement of a man is not where he stands in moments of comfort and convenience, but where he stands at times of challenges and controversy." *Martin Luther*

"Try not to become a man of success, but rather a man of value." *Albert Einstein*

"The most important trip you take in life is meeting people half way." *Henry Boyle*

### In the Next Issue:

- Meeting of the **3rd Assembly of GEF** (Global Environmental Facility) in Cape Town, South Africa
- The II International Symposium on **Soil Erosion and Dryland Farming**, Yangling, Shaanxi, China
- David Suzuki's article, **The Public Doesn't Understand Global Warming**
- Review of the books, **Geology, Quality of Water in Rural Environment, Better Land Husbandry**, etc.