WORLD ASSOCIATION OF SOIL AND WATER CONSERVATION

# HOT NEWS

Issue 08, 2016

# WASWAC HOT NEWS No. 08, August, 2016

## Contents



Cover photo: Beautiful scenery in Belgrade, Serbia.


Editors: Dr. Du Pengfei, Contributors include Prof. Miodrag Zlatic, Prof. Li Rui, and Dr. Qu Liqin.


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**SPECIAL ISSUE FOR WASWAC WC III**

# The Third WASWAC World Conference was Successfully Held

The 3rd WASWAC World Conference was held in Belgrade, Serbia, during the period of Aug. 22-26, 2016. The theme of the conference is "New Challenges and Strategies of Soil and Water Conservation in the Changing World, Sustainable Management of Soil and Water Resources". This conference was organized by the World Association of Soil and Water Conservation, Sub-committee on Belgrade University – Faculty of Forestry. The cooperating organizations include 15 government agencies or academic societies distributed in Serbia, Spain, Italy, and USA. About 200 participants from 33 counties or regions attended this conference.


Sing the national authem of Serbia at the WASWAC WC III opening ceremony

On the opening ceremony, Prof. Li Rui, the president of WASWAC, Miodrag Zlatic President of Organization Committee of WASWAC Conference gave the welcome speech. Besides the keynotes speech by Dr. Panos Panagos from European Commission in Italy Prof. Miodrag Zlatic from University of Belgrade, Prof. Guobin Liu from Institute of Soil and Water Conservation, China, Prof. Mingchang Shi from Beijing Forestry University, and Prof. Jose Luis Rubio from University of Valenciana, Prof. Rathan Lal in the Ohio State University, USA made video report with title "Conserving Soil and Water Resources for Climate-Resilient Agriculture".

Dean of the Faculty of Forestry Belgrade University prof. Ratko Ristid, State Secretary of the Ministry of Education, Science and Technological Development Vera Dondur; Assistant Minister of

the Ministry of Education, Science and Technological Development Viktor Nedovid; Representative of the Ministry of Agriculture and Environment Protection, Directorate for watersNataša Milid; Deputy Mayor of the City of Belgrade Andreja Mladenovid; President of ESSC Prof. Carmelo Dazzi; Secretary of Secretariat for Environment, Belgrade Goran Trivan; Director of Institute for Forestry Ljubinko Rakonjac; Director of Public Enterprise Serbian Forests Predrag Aleksid; Director of Water Management Institute “Jaroslav Cerni” Milan Dimkid; Director of the Institute for Nature Conservation of Serbia Aleksandar Dragišid; President of Organization Committee of WASWAC Conference attended the opening ceremony.

Speech provided by Prof. Carmelo Dazzi

The three days conference provided an output of deep plenary sessions based on the issues collected following topics: new challenges to soil and water resources in condition of climate change, land degradation processes and mechanism, soil and water conservation measures benefits assessment, sustainable watershed management, social and economic aspects, and policies related to soil and water conservation.

The Award-winner for several awards set up by WASWAC has been released by thesecretary-general of WASWAC Prof. Duihu Ning. During the conference, the 2016 Outstanding

Youth Paper Award (Datum) was also presented with a Certificate from the WASWAC and a $1000 (USD) honorarium for each winner. This year, there are 10 young scientists from 6 countries won the award.


Video presentation by Prof. Rattan Lal

Welcome speech by President Li Rui

A glance of speeches

Most participants attended the post-conference tour on Aug. 26 to visit the center of the Agriculture Faculty–Radmilovac, vineyards and orhards on terraces.Measures to control soil and water loss were discussed and communicated.

Group Photo during the Field Trip


Presentations

# WASWAC Awards were Released during WASWAC WC III

WASWAC issued its awards during the WASWAC World Conference III.

The winners of WASWAC Award for the period of 2014-2016 are listed as follows. Congratulations for all the winners who have made great contribution to soil and water conservation.


| Award type | Year | Winner | Country |
|---|---|---|---|
| Norman Hudson Memorial Award (NHMA) | 2014 | Prof. Lixian Wang | China |
| | 2015 | Prof. D.E.Walling | UK |
| | 2016 | Prof. Winfried Blum | Austria |
| Distinguished Research Award (DRA) | 2016 | Prof. Donald Gabriels | Belgium |
| Distinguished Extensionist Award (DEA) | 2016 | Prof. Shri Prafulla Kumar Mandal | India |
| | | Prof. Roberto Peiretti | Argentina |
| Special Contribution Award (SCA) | 2016 | Prof. Samran Sombatpanic | Thailand |
| | | Prof. Miodrag Zlatic | Serbia |

Brief introduction on the award winners:

# Norman Hudson Memorial Award 2014

Wang Lixian

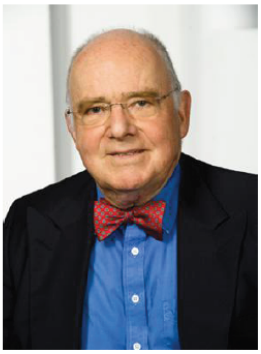
- Professor of School of Soil and Water Conservation, Beijing Forestry University , China
- Work in the field of Higher Education and Research on Soil and Water Conservation in China since 1957.
- Consultant for the Negotiation of International Convention to Combat Desertification, 1993 – 1995
- Editor-in-Chief of Science of Soil and Water Conservation(Chinese), 2007 – 2015

# Norman Hudson Memorial Award 2015

Des Walling

- Emeritus Professor of Physical Geography College of Life and Environmental Sciences University of Exeter, UK
- Research in the field of Suspended sediment loads of rivers, Linking erosion and sediment yield, Sediment source fingerprinting , etc.
- President International Commission on Continental Erosion, 1983 -1991
- President World Association for Sedimentation and Erosion Research (WASER) 2004 -2010

# Norman Hudson Memorial Award 2016



Winfried Blum

- Emeritus Professor at the University of Natural Resources and Life Sciences (BOKU) Vienna/Austria
- Professor in Chair of Soil Science and Director of the Institute of Soil Research at BOKU University in Vienna/Austria, 1979-2009
- Founding President of the European Confederation of Soil Science Societies (ECSSS), 2004-2008
- Council Member of WASWAC, Since 2008 :

# Distinguished Research Award 2016

Donald Gabriels

- Emeritus Professor, Dept. of Soil Management Ghent University, Belgium
- UNESCO Chair on Eremology (Desertification and Land Degradation)
- 1978: Organiser of Symposium on Assessment of Erosion in Europe and USA (1st ISCO Conference)
- 1988: Founder of ESSC: European Society of Soil Conservation (co-treasurer until now)
- 1992: construction of ICE windtunnel (International Centre for Eremology)

# Distinguished Extensionist Award 2016

Shri Prafulla Kumar Mandal

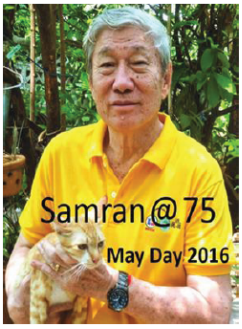
- He being appointed under the State Department of Agriculture of the Govt. of West Bengal, India, 1968-2007. And thereafter Project Management Team Member of the National Food Security Mission.
- Outstanding contribution to the peasantry through Extension Service in the field of Natural Resource Conservation, Management and development.
- Member of Indian Association of Soil and Water Conservationists.
- Member of Soil Conservation Society of India.

# Distinguished Extensionist Award 2016

Roberto Peiretti

- Agronomy Engineer, Master of Science
- Consultant, Lecturer, Extensionist's and Active No Till Farmer
- Founder Member of Argentina No Till Farmer's Association.
- Past President of American Confederation of No Till Farmers Association.

# Special Contribution Award 2016




Samran Sombatpanic

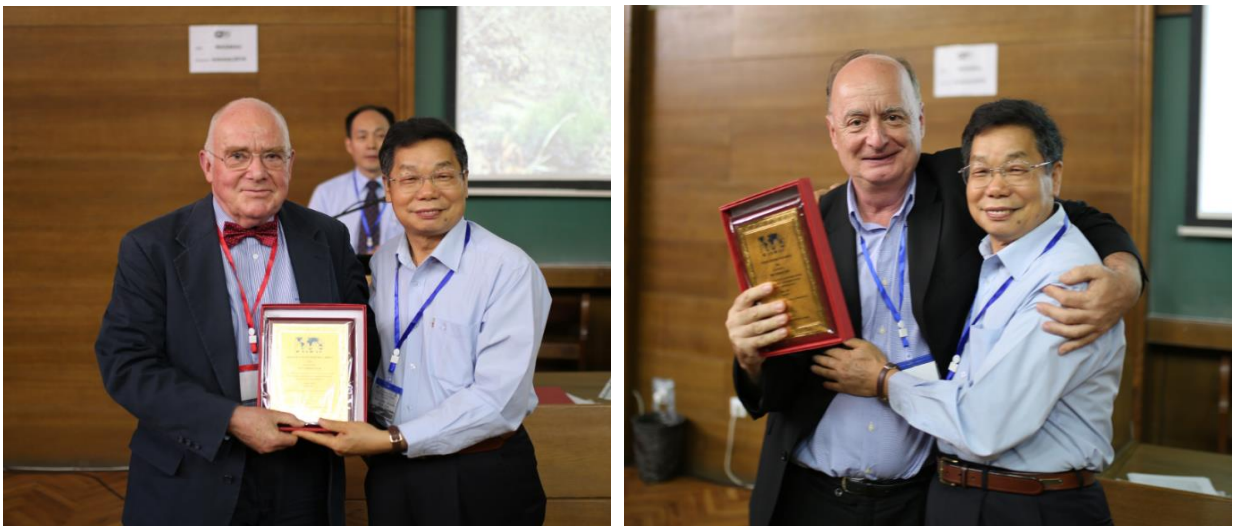
- Land Development Department, Ministry of Agriculture and Cooperatives, Bangkok, Thailand
- WASWAC Deputy President, 1997-2001
- WASWAC President, 2002-2004
- Presenting WASWAC awards
- Move of WASWAC Secretariat from USA to China via Thailand

# Special Contribution Award 2016

Miodrag Zlatic

- Full Professor, Faculty of Forestry, Belgrade University
- Focus on Erosion Control Economics/Watershed Management Economics, Sustainable Natural Resources Management, Natural Resources Policy, Anthropogenic Aspects of Land Degradation and its Control, and Basis of Environmental protection.
- President of World Association of Soil and Water Conservation, 2005 – 2010

According to the BASIC RULES FOR WASWAC AWARDS, the Award Committee (WASWAC AC) issued the Announcement of WASWAC Award (2016) on May 10, 2016. Many positive responses have been received in the following several weeks. Based on the nomination results, primary selection was made by WASWAC AC, then the primary selected candidates namelist was submitted to WASWAC Council for voting to reveal the final winners.



Award issue ceremony during WASWAC WC III

Many thanks for the nomination and evaluation provided by our concilors, region representatives and members during the process.

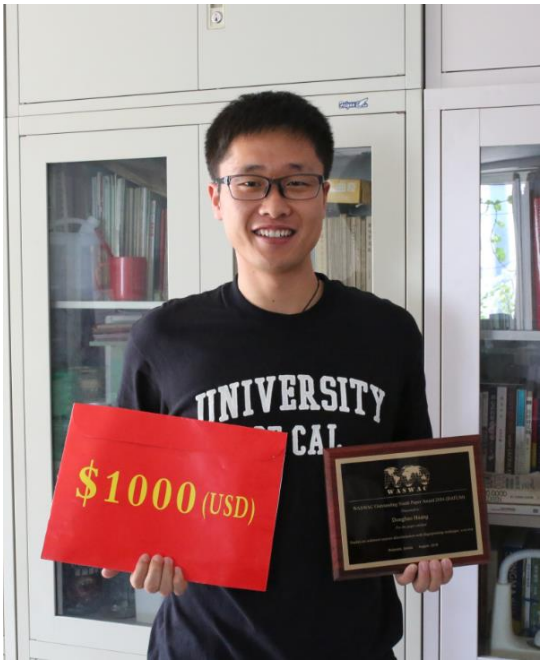
Congratulations again for these winners!

# The WASWAC Outstanding Youth Paper Award 2016 (DATUM) was Released during WASWAC WC III

In order to encourage young scientists to contribute to soil and water conservation in the world, the WASWAC continually launches the WASWAC Outstanding Youth Paper Award at the Third World Conference. This award is aimed to presented to outstanding research papers on soil and water conservation by the scientists of 40 years old or younger by the end of 2016. Many positive feedbacks were received after releasing the announcement in October, 2015. Young scientists contributed on soil and water conservation or related fields have been submitted their papers followed our instructions. After reviewed by researchers distributed in the world, 10 excellent papers have been selected from total 30 submitted registrated papers. 10 young scientists from 6 counties shared this great honor, the information on winners is as follows:

| No. | Name | Sex | Country | Title of paper |
|---|---|---|---|---|
| 1 | **Csilla Hudek** | Female | **Hungarian** | Quantifying the contribution of the root system of alpine vegetation in the soil aggregate stability of moraine |
| 2 | **Xiaojing Wang** | Female | **China** | Comparative Study of Methods for Automatic Identification and Extraction of Terraces from High Resolution Satellite Data (China-GF-1) |
| 3 | **Donghao HUANG** | Male | **China** | Studies on sediment sources discrimination with fingerprinting technique: a review |
| 4 | **Songtang HE** | Male | **China** | Anoverview of ecological engineering management to intense gravitational erosion——A case study on Xiaojiang River basin ,Yunnan Province |
| 5 | **Tijana Vulevic** | Female | **Serbia** | Multi-criteria decision analysis for sub-watersheds prioritization via the PROMETHEE method |
| 6 | **Mostafa Emadi** | Male | **Iran** | Black carbon application as a sustainable management approach in temperate region: a lesson from historical charcoal production sites in beech forest of northern Iran |
| 7 | **Chen Chao** | Male | **China** | Measuring flow velocity over frozen and non-frozen slopes of black soil with leading edge method |
| 8 | **Nenad Malic** | Male | **Serbia** | Sudangrass (Sorghum sudanense Pers.) in Reclamation of Technosols in StanariMining Area |
| 9 | **Xiaoyu Lu** | Male | **USA** | Studying rill erosion and rill morphology using terrestrial laser scanning: the effect of grid size |
| 10 | **Alemtsehay Tekaly Subhatu** | Female | **Swizerland** | Sediment deposition on the terraced crop lands in Anjeni catchment, Ethiopia |

Award issue ceremony during WASWAC WC III




Award issued to Dr Huang Donghao who did not go to Serbia

The award was issued to the winners during the closed ceremony of WASWAC WC III. For those winners did not show in the conference, the secretariat of WASWAC issued the award in Beijing office or post the certificate and honorarium to the winners.

This award consists of a Certificate from the WASWAC and a $1000 (USD) honorarium.

The WASWAC Outstanding Youth Paper Award 2016 (DATUM) is launched with generous support from the Beijing Datum Technology Company (http://www.dtgis.com/ ).

# The WASWAC Council Meeting was Held

During the 3rd WASWAC World Conference, the WASWAC council meeting was held on Aug. 23.

President Li Rui introduced the work of council and main progresses. Prof. Ning Duihu, the secretary-general of WASWAC, gave a summary report on structure building, member management, conference, communication, publicity, publication and financial status. This reports showed clearly that what have been done by the secretariat in the last three years and what will be done in the following three years.

The Nomination Committee of WASWAC pronounced the next term candidates of councilor, and Prof. Li Rui will continue to serve as the President of WASWAC.

Finally, India was chosen to be the organizer of the Fourth WASWAC World Conference, which will be held in India in 2019.

**See you in India in 2019!**

# Detailed Report on WASWAC WC III

President of Organizing Committee of WASWAC Conference
*Prof. Miodrag D. Zlatić , D. Sc.*
Immediate Past President of World Association of Soil and Water Conservation
Belgrade University
Faculty of Forestry, Kneza Višeslava 1, 11030 Belgrade, Republic of Serbia

Belgrade University - Faculty of Forestry, in cooperation with the World Association of Soil and water Conservation, organized third conference of this association in Belgrade from August 22-26.2016.

The Conference was dedicated to the protection of soil and water resources and to the degradation factors and practical measures against adverse impacts through following topics:

- ✓ New challenges to soil and water resources in condition of climate change
- ✓ Land degradation processes and mechanism
  - + Causes of Land Degradation
  - + Modeling Water Erosion
- ✓ Soil and water conservation strategies to adapt and mitigate climate change
- ✓ Soil and water conservation measures benefits assessment
  - + Soil properties
- ✓ Sustainable watershed management
  - + Erosion Control
- ✓ Social and economic aspects and policies related to soil and water conservation

At the opening ceremony, Dean of the Faculty of Forestry Ratko Ristić opened the Conference and welcome speeches also gave Assistant Minister of the Ministry of Education Viktor Nedović, President of WASWAC Li Rui, President of ESSC Carmelo Dazzi, Secretary of Secretariat for Environment of Belgrade Goran Trivan, Director of Institute for Forestry Ljubinko Rakonjac, Director of the Institute for Nature Conservation of Serbia Aleksandar Dragišić, Representative of Water Management Institute “Jaroslav Cerni” Milutin Stefanović, President of the Organising Committee of WASWAC Conference Miodrag Zlatić and President of International Youth Forum of SWC Bin Wang.

In the working part of the Conference, first plenary session started with the presentation of Ratan Lal, the highest world authority on the topics of erosion and erosion control. Within the same session, there were presentations of Miodrag Zlatić, Panos Panagos, Guobin Liu, Minchang Shi and Jose Rubio that obtained topics of demographic trends in the context of climate change and sustainable soil management, then erosion processes in Europe, as well as the influence of SWC on soil security.

Special attention was dedicated to the International Youth Forum of SWC, where 10 best papers were awarded with the price of 1000 USD by the foundation of the Chinese Institution DATUM.

Plenary sessions of the topics were organized after paper presentations. Moderators/chair persons of the topics/sessions gave reports at the closing ceremony as following:

1. **REPORT of Topic A: New challenges to Soil and Water Resources in Condition of Climate Change**

   Moderator: **Prof. Winfried Blum**

The key issue of this session, with 3 presentations, was the role of soil in the mitigation of climate change through C-sequestration.

Starting from the political statement of Stéphane le Foll,French Minister of Agriculture during the World Climate Conference in Paris in December 2015 = 4/oo addition of organic C to soils annually, we discussed the time scale and the quantity of C-sequestration of soils under forest and agricultural management.

As a result, it became clear, that C-sequestration is a complex process, which is primarily dependent on soil texture, which determines the mineral surfaces, available for the fixation of organic C. – Another most important parameter is the quantity and quality of annual C-input from plant and animal residues. Moreover, the annual temperature regime influences the biological turnover rates, reducing the C-sequestration in case of higher temperatures and favoring sequestration at lower temperatures.

Therefore, we recommend to study first the prevailing local site conditions (soil and climate) before formulating standard values, which in reality don't meet the local conditions of C-sequestration.

The stipulated value of annual C-accumulation of 4/oo seems to be very high and not reachable under average soil and climatic conditions.

## 2. REPORT of Topic B. Land degradation processes and mechanism

### B1 - Causes of land degradation

Moderators: **Miroslav Dumbrovsky and Xiaoyu Wang**

In the session with topics causes of land degradation make presentations 9 presenters, 7 of them were focused on soil degradation, one focused on the degradation due to mining activities and one was directed to degradation due to chemical contamination. It shows that, the issue of land degradation problems is mostly a problem of soil degradation.

Land degradation, due to adverse effects of human activities, was a major global issue during the 20th century and will remain for solving in the 21st century. The importance of land degradation among global issues is very high because of its impact on food security (Land degradation through soil degradation is causing losses on crop productivity) and quality of the environment, through the decreasing quality of soil and water (especially water resources).

Land degradation is equal to Soil degradation

Soil degradation – degradation of the complex of physical, chemical, biological properties.

- ✓ Physical properties are damaged and negatively changed due to collapse of soil structure leading to crusting, compaction, desertification, and have an adverse impact on natural resources.
- ✓ Degradation of chemical properties includes leaching, acidification, salinization, and fertility losses

Biological degradation includes decreasing of biological activity of soil due to decreasing organic matter and humus content.

Recently there has been a serious problem of greatly expanded production of biofuels and bioenergy from field crops. The result is accelerated soil degradation. Is it ecological in nature and the landscape? Is it economical? Is it sustainable? The damages (on and off site) are greater than the benefits.

There are two basic steps involved in the process of decreasing the problem:

- ✓ Monitoring and assessment
- ✓ Application of mitigating and conservation technologies

An effective soil conservation requires an appropriate complex system of measures in the landscape. They are also important to continue to develop new sophisticated methods and technologies for decreasing land degradation.

System of soil conservation solving land degradation depends on the ability and the willingness of land users to apply them. When we talk about land degradation, it is not just a technical issue, but also an economic and political issue. From a technical point of view, we've already made many positive steps, but for successful solving the problem of land degradation is necessary to develop suitable economic and political tools to increase the willingness and ability of land users to adopt conservation measures.

## 3. REPORT of Topic B2 (a): Erosion modelling

Moderators: **Valentin Golosov and Ivan Blinkov**

15 presentations were listening during four sessions.

Different aspects of erosion modelling were discussed, including:

1) Application empirical erosion models for the quantitative assessment of erosion rates in different scales, starting from a continent or Russian Plain up to small catchments.
2) Elaboration of physical based erosion models using experimental observations for description of different erosion and deposition processes. New approach for quantitative assessment of sediment and nutrient transport through vegetation buffer strips, different equations for assessment of raindrop effect on erosion rates; spatial –temporal variations of rainfall erosivity in different regions.
3) Modelling and evaluation of climate changes influence on the erosion rates in different regions of the world (China, European part of Russia)

4) Erosion risk assessment in mountains area and consequences of extreme erosion events (Bulgaria Macedonia)
5) Influence of relief parameters on the erosion rate, sediment transport and $CO_2$
6) Analysis of long-term trends of river water and sediment discharges in context of assessment of erosion rate trends within their basins (Serbia, Macedonia and Russia)

Based on the presentations and experience of session participants different recommendations were suggested, including:

1) Erosion modelling results should be validated based on the results of erosion monitoring and application of the set of independent field methods of erosion and deposition rate evaluation.
2) It is strongly supported idea for organization multi-national monitoring center in different landscape zone, where different methods and approaches of erosion rate assessment may be tested together with field monitoring of sediment redistribution on the plots, field catchments and small river basin scales. Other earth sciences disciplines can organize their monitoring in such centers. Given monitoring center can be used for training student and researchers from developing countries and for organization of coordination, research program meetings and workshop for unification of application of different erosion models and field methods;
3) Very important the application of the erosion model for prediction of possible consequences of climate and land use changes on land degradation;
4) It was also emphasized that more attention should be given to communication with politicians and mass-media, adopted approaches should be used for explaining the importance of erosion investigation and in particular application of erosion models elaborated based on long-term monitoring data and field and laboratory experimental information.

## 4. SESSION B2 (b) – Modeling water erosion

Moderator: **Zheng Fenli and Sanja Manojlović**

There were more than 30 participants to attend our section, and 10 speakers made the presentations, among which, nine oral presentations and one poster presentation. 10 speakers focused on the topics as follows:

1) Erosion process and mechanisms, such as splash erosion and interrill erosion.
2) Quantifying soil erodibility and rainfall erosivity.
3) Climate Change, especially extreme climate event impacts on water erosion patterns and sediment delivery.
4) Noe technology development for measuring raindrop physical parameters, such as raindrop distribution, velocity and energy.
5) Erosion modelling development and application.

After we spent above one hour for deep discussion, we proposed the following points for future study:

1) Developing new technology for measuring and monitoring erosion process, especially gully erosion and mass movement.
2) Soil erodibilty variation with season and year.
3) Water erosion response to climate change, especially in extreme rainfall events.
4) Rational use current water erosion model to assess erosion risk and regional soil loss.

## 5. REPORT OF SESION B3 – LAND DEGRADATION PROCESSES AND MECHANISMS

Moderators: **Stanimir Kostadinov and Emilija Velizarova**

Following the extensive climatic changes it is expected, in the future, the increasing of natural hazards and extreme events (erosion processes, torrential floods, landslides and forest fires).

The recent prolonged drought observed in different countries, it has affected the surface water resources. The extreme rain events could cause flooding and thus deterioration of the water quality. Integrated management in the watersheds is the best solution to mitigate the problems with extreme events and its consequences (erosion processes, torrential floods, landslides and forest fires).

In order to achieve the required goals it is necessary for the governments to undertake the following activities:

1. The change of the legislature with the aim to increase the works on the prevention of natural hazards:

2. Organisational and administrative measures; Having in mind that extreme events cause damage to the economy and the society in general, the works on erosion and torrential flood control, and other extreme events, should be financed from all economy sectors: water management, forestry, agriculture, energy sector, urban planning, traffic, as well as all others which suffer from the damages caused by torrential floods and soil degradation.
3. The preparation of strategic documents to mitigate extreme events in order to decrease the economy and social effects.
4. The realization of "horizontal and vertical" coordination at the level of *the competent authorities (Governmental bodies)* concerning the coordination of organizational units within water management, forestry, agriculture and others in order to achieve the adequate treatment of the area around mountainous basins concerning prevention of natural hazards.
5. Establishing continuous monitoring and early warning systems of the occurrence and effects of natural hazards in order to provide a full scale description of the problems at hand and further on to mitigate and cope with future events.
6. Research and application of new methods and technologies to mitigate climate change and coping with extreme events
7. Building capacities, knowledge improvement at all levels, starting with local inhabitants through to respective authorities

**Establishing a special fund for: Implementation of financing activities, for communication, prevention and direct action during and after extreme events.**

## 6. REPORT of Topic C: Soil and water conservation strategies to adapt and mitigate climate change

Moderators: **Ruslan Sulejmanov and Mirjana Todosijević**

5 presentations were listening during topic C.

Conservation practices for mitigation and adaptation to a changing climate: Sustainable solutions.

Problems:

- ✓ The soil erosion in relation to food and water security, does not being properly recognized as a huge problem.
- ✓ The negative impact of the climate changes is evident.
- ✓ Soil erosion (especially wind erosion, which causes damage to the economy caused by moving sand).
- ✓ The investment in soil conservation and reduction of the process of soil erosion.
- ✓ The poor social status of local community in the rural area
- ✓ The lack of working force, caused by the one-way permanent migration of the working age population from rural to urban areas and consequent depopulation of rural areas.
- ✓ Unsuitable habitat conditions in the area of sands and degraded land.
- ✓ The lack of practical experiences and measures in the case of sustainable use of sands and degraded land.
- ✓ The low degree of exchange experiences between international subjects

Suggestion:

Implementation of the new practices and technologies

- In case of agricultural production:
  - Production on sustainable principle,
  - Agriculture management and no-till systems,
  - Intercropping of field crop with cash crop.
- In case of afforestation:
  - The application of new patented technology of raising woody plantations P 2013 -0555,

with the profitable species (fruit) for producers/farmers, which affects the prosperity of the region.

- ✓ Further, following of non native species that strengths and threats ('ST') strategies are dominant in all three prospects: ecology, silviculture and climate changes.
- ✓ There is an obvious need for exchanging experiences between international subjects.

## 7. REPORT of Topic D. Soil and water conservation measures benefits assessment

### D1 – Soil properties

Moderators: **Ju-Ying Jiao and Maria Konstantinova Ivanova**

6 speakers arranged, 3 speakers give presentations, 17 attendees

**In the Chinese hill and gully Loess Plateau:**

Soil erosion resulted in seed redistribution and caused the seeds to concentrate in a trap or deposited micro-sites.

Overland flow could not result in large numbers of the seed loss and soil erosion is not the limiting factor for natural vegetation recovery in the seed stage.

Other factors, such as seed germination, seedling survival capacities, pioneer species dominated in the soil seed bank, and water shortage may be the limiting factor for natural vegetation recovery.

**In Njona river basin in Kenya:**

Agriculture was the most dominant land use.

There has been a transformation from areas of traditional rural landscape in intensive agriculture.

In 2000 to 2014, commercial agriculture increased by 65% and subsistence agriculture by 21% with the forest reducing by 64%.

**In South Moravia in the Czech Republic:**

Chisel and disc plough cause less soil translocation than does the mouldboard plough.

The shallow tillage (<20cm depth) and up-slope tillage are recommended practice to reduce tillage erosion.

Various agro-zones and soil types, and the critical threshold for soil loss by tillage erosion require further research.

## 8. REPORT OF Topic E. Sustainable watershed management

### E1 - Erosion Control

Moderators: **Ivan Blinkov and Jana Podhrázská**

River basins are the dynamic systems constituted by a complex arrangement of fluxes between the land and water environment. The great part of the eroded material ends the final recipient. Studying the processes require as experimental works, as modeling the runoff and erosion processes. The results showed a clear relation between land cover/use and slope and the level of erosion and runoff. Protection of land with vegetation is the primary factor in the fight against water erosion with necessary application of biotechnical, technical, administrative and planning measures. Works on protection from erosion and regulations of torrents have influenced the decrease in erosion, as well as the reduction of the maximum discharge value. In the case study in Serbia there was found out a decrease of sediment transport for 3.5 times, then decrease of peak point for 20%. In the case study of Macedonia there was found out a reducing value in sediment load in 30%, then also in Albania.Remedy of incurred damages is a prolonged process, in case of loss of soil this is often irreversible process. For objective and effective identification of measures leading to protect the quality of water bodies, soil erosion control and to support the stabilization of ecosystems it is necessary to have comprehensive information on the causes of degradation processes, to be able to locate them at any level and prioritize the application of measures. An appropriate tool for establishing of soil and water conservation measures can be land consolidations, because the aim of this process is not only to create conditions for rational farming but also for improvement of environment and rural landscape development.

## 9. REPORT of Topic F(a): Sosial and Economic Aspects and Policies Related to Soil and Water Conservation

Moderators: **Carmelo Dazzi and Nada Dragović**

It is well established that human well-being is dependent upon Soils and Water quality and conservation.

The lack of understanding of, and information on, the value of soil and water in providing ecosystem services has generally led to their omission in public decision making.

During the topic F presentations, several aspects were considered and several questions arose. Soil scientists are convinced of the importance and relevance of soil and water. Now, from the point of

view of the social and economic aspects and policies related to soil and water conservation, the problem is to convince the others. The first skill of the soil scientist is to be able to improve the societal perception of the importance of the soil and water.

We must start to consider the soil and the water not only as natural resources, but mainly as economic resources !!

For 3 reasons !

1. Because we face problems and priorities, resulting from scenarios involving soil and water conservation, which are functions of the perception that, in the different social context, people has on soil and water;
2. Because the perception of soil and water was traditionally linked to the agriculture, ignoring that actually soil functions support in a more or less evident way, all human activity.
3. Because in recent years we experienced that, the attempt to spread the culture of the soil is a difficult task, especially if the "insiders" are the only ones who talk about soil and its conservation.

It is therefore a priority to widen and raise awareness among citizens and administrators on the importance of soil and its water, involving different expertise.

In this context, International scientific societies such as WASWAC and ESSC can play an important role in bringing together experts from several disciplines (such as environmental engineers, environmental economists, epidemiologists, physicians) to be able to give not only a social but also an economic added value the soil and to the water so that these resources can acquire more and more consideration in all spheres of the society.

## 10. REPORT of Topic F(b): Social and Economic Aspects and Policies Related to Soil and Water Conservation

Moderators: **Ildefonso Pla Sentis and Dragoljub Todić**

From the presentations (Keynote and regular) and the discussion among attendants to the discussion session, it may be concluded:

- Social and economic factors are usually very important and even determinant, both in the development of soil and water conservation problems and on the adoption and application of soil and water conservation practices
- Still nowadays, the problems of soil and water degradation and their catastrophic consequences like droughts, floodings, landslides, etc, are in most of the occasions related or a consequence of non adequate occupation, use and management of the land, derived of population pressure and related social and economic factors, and not so much, as it is usually attributed, a consequence of anthropologically induced climate changes. This confusion, generally based on interest to drive public opinion and political interests, leads in many cases to non adequate policies and measures to prevent or to solve those problems.
- The required social and economic studies and evaluations in relation to soil and water conservation must be accompanied by concurrent field studies of the particular biophysical conditions, mainly the ones related to soils, climate and topography affecting the hydrological balances and processes in the zone being evaluated. This in order to correct the usual application of empirical generalized conservation practices, without enough local required information and research to select or develop the most appropriate for each case, leading in many cases to catastrophic consequences.
- The very common use of empirical model to evaluate and predict soil and water degradation problems and their consequences, may lead frequently to non adequate prevention or control measures, unless those models are adapted to the local conditions, including local information on soils, climate etc, with a previous strict validation.
- In general, it required a better understanding of the relationships between global warming and other human socioeconomic factors and their relative influence on soil and water degradation processes leading to natural disasters, for better policies and decisions to prevent them. The present tendency to rely only on the potential previewed future human-induced climate changes for guiding research, and preventive policies and actions is not justified and has proved to be non very effective.

The main proposal of WASWAC is establishing global program/project in mapping and assessing

erosion hazard and use of contemporary protection technologies.

Besides of professional, conference had also socio-cultural character. It was organized sightseeing of Belgrade. Welcome dinner was organized on the boat/ship “Kruna”.

Field trip was organized at the last conference day partly in Vojvodina province. First, we visited the Residence of Prince Milosh (Serbian: Konak Kneza Miloša) - a royal residence in the Topchider municipality of Belgrade, Serbia. It was originally used as the palace of Prince Milosh Obrenovich. It was built in 1831, after Serbia was given autonomous status in the Ottoman Empire. The grounds include a plane tree over 160 years old, one of the oldest in Europe.

Nearby we visited regulation of Topciderska river which is regulated from the mouth up to 12.8 km by implementation of urban type of regulation, with prismatic, covered riverbed. In the sector through the part of industrial area Rakovica, riverbed is closed, as collector type. The upstream section of the river bed is not regulated, overgrown by shrubs and grass, with reduced capacity for maximal discharge.

We visited the shelterlbelt on the way to the Dolovo settlement/village, which is about 30 years old.

It consists of 2 rows of black walnut (*Juglans nigra* L.) and 3 rows of birch (*Betula pendula* Roth) on the left side of the road, and 2 rows of black pine (*Pinus nigra* Arnold) and 2 rows of birch (*Betula pendula* Roth) on the right side of the road.

The shelterbelt width, including the road area is about 50 m. The width of the shelterbelt on the left side of the road is 14 m, and 11 m on the right side. The distance between the trees in a row is 2.5 m on the left side, and 4 m on the right side. The distance between the rows and the road is 3 m on both sides.

We visited **Viminacium** - a major city (provincial capital) and military camp of the Roman province of Moesia (today's Serbia), and the capital of *Moesia Superior*. The city dates back to the 1st century AD, and at its peak it is believed to have had 40,000 inhabitants, making it one of the biggest cities of that time. It lies on the Roman road *Via Militaris*. Viminacium was devastated by the Huns in the 5th century, but was later rebuilt by Justinian. It was completely destroyed by the arrival of Slavs in the 6th century. Today, the archaeological site occupies a total of 450 hectares

(1,100 acres), and contains remains of temples, streets, squares, amphitheatres, palaces, hippodromes and Roman baths.


At the end of the field trip we visited Radmilovac which is an organizational unit of the Faculty of Agriculture. Part of the teaching, professional and production practices and other forms of labor are performed at this estate as part of the curriculum of undergraduate studies to meet the needs of the Faculty and other users. It is a unique national resource in several areas of agricultural science.

A significant part of EE "Radmilovac" is the gene bank of fruit trees and vines used as a source of genetic material for the improvement of various characteristics of fruit trees and vines in combining genetic basis of available varieties, biotypes and hybrids in the creation of new improved varieties of fruit trees and vines. A total of 23 new varieties of vines (15 table varieties and 8 wine varieties) and one variety of peach were created at EE "Radmilovac". A total of 8 new clones of vines has been recognized, and a certain number of new genotypes of cherry, sour cherry, apricot, raspberry and

vine are in the process of recognition.

Good conference atmosphere was concluded with “a glass of conversation”, by testing good sorts of wine and discussing professional issues.

# Thanks for attending!

# Thank You, Volunteers

All volenteers contributed a lot for making the WASWAC WC III successful. These young people who have helped WASWAC WC III over the helding period in so many ways. That we have so many who are keen to be involved and support the conference is an impressive indication of the spirit of our association. We are so grateful to all who help to make the conference sucdessful. We owe a great debt to you all! Thank you, volunteers!