

IGS NEWS



NEWSLETTER OF THE INTERNATIONAL GEOSYNTHETICS SOCIETY

Dedicated to the scientific and engineering development of geotextiles, geomembranes, related products, and associated technologies

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General Information for IGS Members

IGS Web Site Has a New Look and Some New Features!

With the growth in chapters and general membership, more than ever the IGS website is seen as a valuable tool to both connect and inform the members by providing quick access to information that will be of interest and assistance to the members. The IGS Communications Committee along with the Secretary's Office and the various committees have worked with an outside vendor to develop an updated IGS website, as the existing site is was really its age. The site has a dual focus.

General Access

The General Access area of the site contains information on IGS, which will service people with a general interest in geosynthetics. This section includes the following information:

- **IGS information** – Society documents, current chapters, how to form a chapter, etc.
- **Committee's and Task Forces** – Information on the engine room of the IGS, this is an entirely new section of the site. Providing a location for each of the committees to report on their projects and initiatives.
- **Directories** – Corporate and individual member information. The Corporate Member sections will be updated to improve information.
- **Gallery** – showcasing the inspirational images and videos of geosynthetic applications
- **Initiatives** – a new section providing information on the innovative programs available through the IGS! Detailed information on initiatives such as *Educate the Educators* and the *Ambassadors Initiative*

Members-only Access

The Members-only section consists of a technical resources section to provide members with a wealth of knowledge on geosynthetics. Some of the key resources worth noting:

- IGS Members **access to two top-rated geosynthetic journals** with their membership: *Geosynthetics International* and *Geotextiles & Geomembranes*. This amounts to a savings of hundreds of dollars (USD) per year on geotechnical journal subscriptions through IGS membership.
- **Proceedings of geosynthetic conferences** held under the auspices of the IGS since 1977. Currently there are 1800 papers in the Proceedings Library, and conference papers are consistently added to keep IGS members up to date with the latest information.
- **Membership Directory** – contact information and access to over 4,000 of your peers worldwide.
- **Members** can now also update their own profile, contact information, photo, etc. when logged in as a member of the IGS!
- **Corporate & Individual Members** (who are not in a chapter) can pay their dues from within their member profile as well

The website is a living document and will continue to evolve with the changing needs of the geosynthetics industry. Please be sure to check geosyntheticsociety.org frequently during the next year as we ramp up this fantastic member benefit and create a dynamic one-stop shop for the geosynthetics community.

Reported by

Warren Hornsey Pr. Eng., IGS Communications Committee



Logging in to the New IGS Web Site!

The new IGS Web site has arrived. Logging in is similar to the old site but with a few differences.

1. As before, your “user name” is your IGS Member number, if you don’t know that number you may write to IGSsec@GeosyntheticSociety.org and Terry will let you know what it is.
2. Your password from the previous site **did not** carry over. You will need to get a new password. See Figure 1 and 2 how to proceed.

Once you have successfully logged in (see figure 3 and 4) you may change your password, update your profile, add a photo of yourself and much more! It should be fairly self-explanatory however, if you need help don’t hesitate to call or write!

Reported by

Elizabeth Peggs, IGS Secretary General

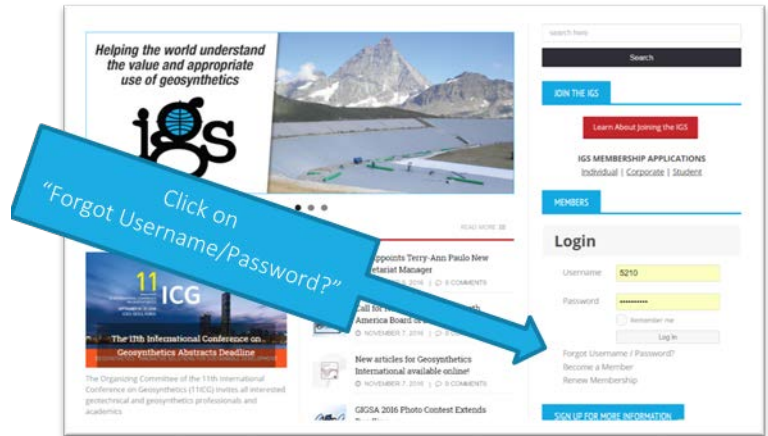


Figure 1

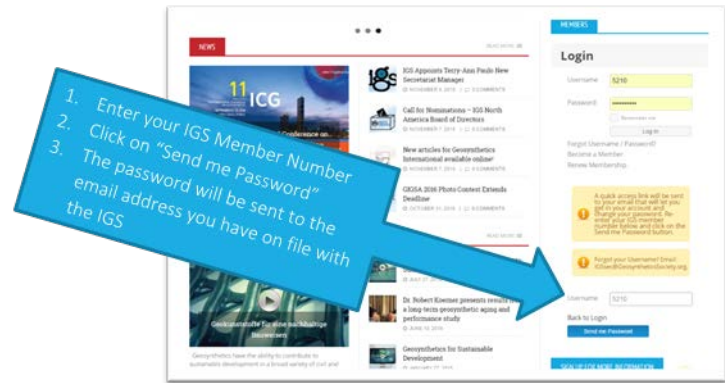


Figure 2

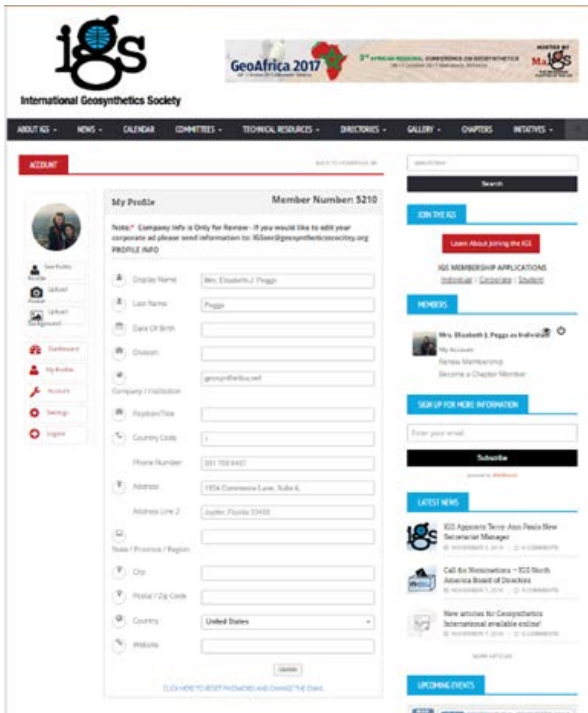


Figure 3

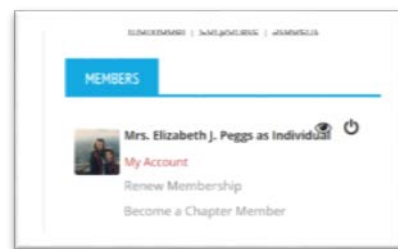
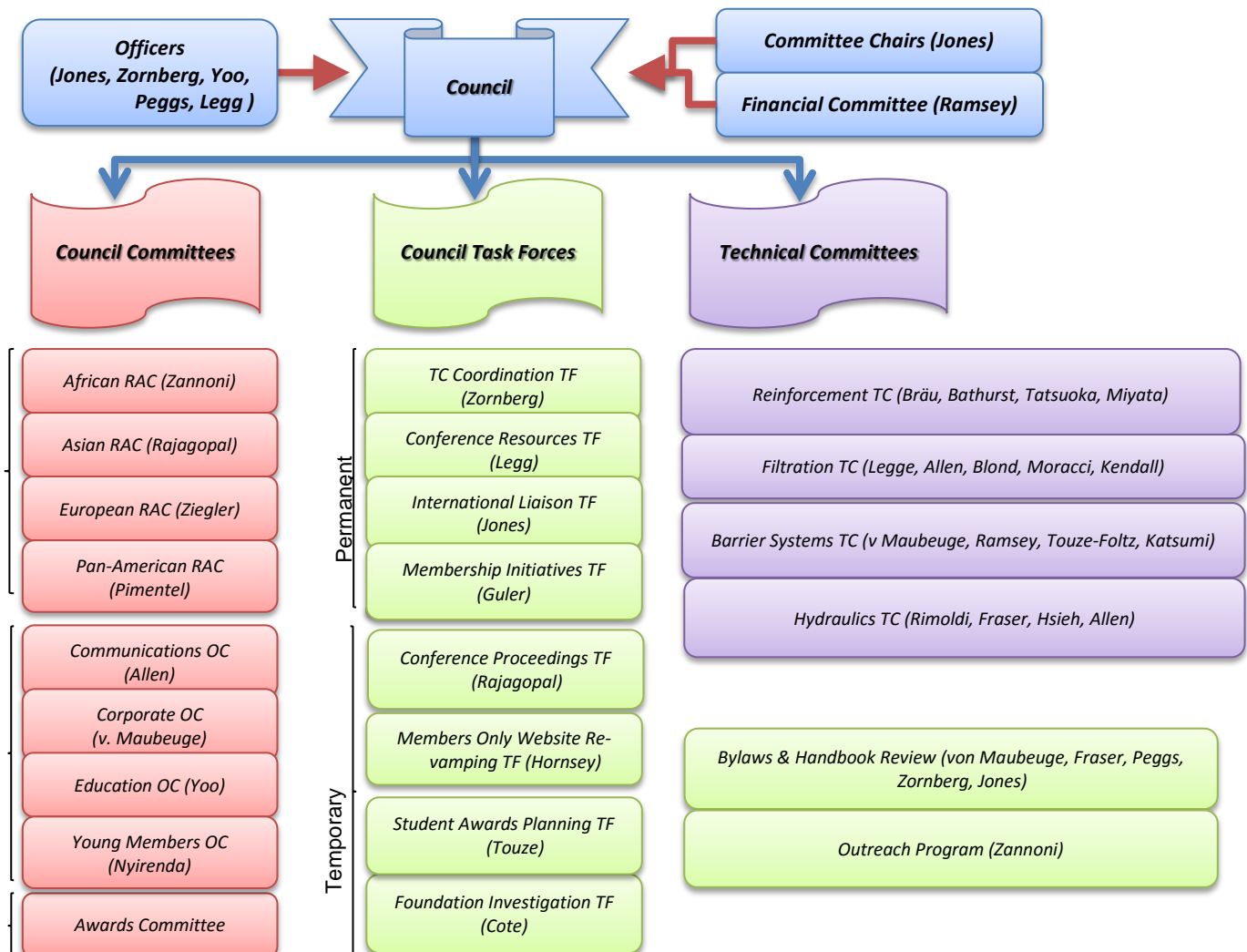


Figure 4

New Organisation of IGS after 2016 Election

Following the 2016 election for the IGS Council and the co-option processes at the IGS Council meetings in Miami and Ljubljana the structure and the persons of the actual organisational units of the IGS are as shown in the following diagram.

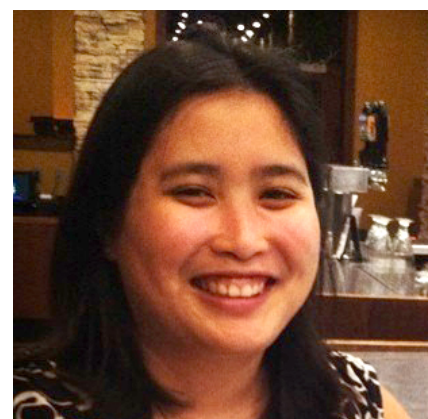


Reported by
Elizabeth Peggs, IGS Secretary

IGS Appoints Terry-Ann Paulo New Secretariat Manager

As **International Geosynthetics Society (IGS)** members gathered in Delhi, India for the 6th Asian Regional Conference on Geosynthetics, they are meeting the **IGS's new Secretariat Manager: Terry-Ann Paulo**. She takes over the role from **Diana Davis**, who has held the position since August 2010 and who is retiring, effective November 18.

Terry-Ann Paulo brings a strong background to the role, including significant experience with associations and committee-based organizations. She worked for the National Pork Producers Council for four years, a job which gave her committee management duties, including with political action. She also managed fundraising events and receptions. Most recently, Paulo worked for the Florida House of Representatives as a representative's aide, working with committees, budgets, public relations, lobbyists, social media, and a variety of other tasks. Outside of work, Paulo is a Board of Directors for the Florida Red Cross and a mentor for the Big Brothers & Big Sisters, as well as a member of the Ft. Pierce Rotary Club. "Terry is enthusiastic about helping the IGS committees and working



Terry-Ann Paulo New Secretariat Manager

groups continue to evolve,” the IGS noted in a statement. “Her strengths in communication and organization are sure to provide the IGS’s volunteers with excellent resources, so that they may focus on creating technical and educational content for the various IGS initiatives.”

Paulo works out of the IGS office in Jupiter, Florida and can be reached by email IGSsec@GeosyntheticSociety.org and phone +1.561.768.9489.

The IGS, in its correspondence to its membership on Terry-Ann Paulo’s appointment, acknowledged Diana Davis’s many years of contributions. Her six-year tenure was one of significant growth in individual, corporate, and student membership. It also saw a surge in chapter activities and chapter establishment, all of which kept the Secretariat Manager office buzzing.



Peter Legg (IGS Treasurer) acknowledging Diana Davis (IGS Secretariat Manager 2010 – 2016) at EuroGeo6

“The contributions of Diana Davis cannot be overlooked,” the IGS wrote. “The society will dearly miss her smiling face and outstanding service.”

*Reported by
Elizabeth Peggs, IGS Secretary*

Technical Committees IGS-TC

IGS TC-B Activities Report

The following is a short summary of activities and forecast of ongoing activities by the Technical Committee on Barrier Systems (TC-B):

TC-B Contribution in USA

Barriers were an important topic during the April 2016 GeoAmericas event in Miami. Three technical sessions were held highlighting barrier materials, applications and performance as a topic. These sessions were very well attended and some had standing room only.

Barriers were also included in the Case Histories sections and more importantly, Dr. Robert Koerner’s Keynote/Ple-nary session lecture by “Lifetime Predictions of Exposed Geotextile and Geomembranes” focused on barrier performance and was a wonderful extension of work that was previously reported on a lifetime of buried (non-exposed) geosynthetic and barrier materials. It provided useful information to address a common question from users: “How long will it last?”

Additionally, an open Technical Committee on Barriers membership meeting was held. The meeting minutes and other information about the activities, goals and composition of the committee can be found on the IGS website here: <http://www.geosyntheticssociety.org/committees/technical-barrier-systems/>

A training lecture on geosynthetic barriers was also presented discussing current topics and regulations related to barrier usage and performance. Geosynthetic barriers were an important part of the success of GeoAmericas 2016.

IGS TC-B contributed to EuroGeo 2016 in Ljubljane, Slovenia

At the EuroGeo6 conference several Specialty Session’s were organized. The special session on Barrier systems was chaired by Nathalie Touze-Foltz and Kent von Maubeuge and consisted of seven invited lectures reflecting the scientific level the industry has reached in this area.

Presentations covered “Regulations and Recommendations Describing the Use of Geosynthetic Barriers”, “Protection Geotextiles for Geomembranes in European Landfill Applications”, “Geosynthetic Drainage and Lining Systems in Piggy-Back Landfills”, “Barrier Systems for Noise Barriers with Contaminated Soils”, “Development of a Design Guide for Geosynthetics Barriers, as Part of the ISO Design Using Geosynthetics Development” and “Continues Improvement Geosynthetic Materials CQA/CQC Installation”. All papers are available in the proceedings or can be individually requested from the board of the IGS TC-B group.

Additionally an open TC-B membership meeting was held by the board and the approx. 25 participants were informed about the ongoing topics in the group. The minutes are available on the IGS website in the TC-B section. One of the topics was the current TC 221/WG6/PG9 draft on “Design Using Geosynthetics Part 9: Barriers”. As this document is close to publication it was made public for comments and distributed to the TC-B members for this purpose. Comments to be sent to Kent (kvmaubeuge@naue.com) with the marking “Comments to Barrier PG9 Document”.

IGS TCB contributed to Geo-Chicago 2016

IGS Technical Committee on Barrier Systems contributed to the organization of two technical sessions in Geo-Chicago 2016 which was held in Chicago, Illinois, USA on 14 - 18 August 2016. Geo-Chicago 2016 was organized by the Geo-Institute of the American Society for Civil Engineers (ASCE).

The first session named “Advances in Design, Testing, and Evaluation of Geosynthetics Used for Geoenvironmental Systems (C34, 11:00 – 12:30, August 15)” attracted eight papers regarding several state-of-the-arts on geomembrane, geosynthetic clay liners (GCL), and other geosynthetics used in geoenvironmental applications. Four papers on geomembranes, three on geosynthetics, and one on geofoam with flyash were presented. TCB Co-Chair Nathalie Touze-Foltz moderated this session together with Tim Bauters.

Another session named “Geoenvironmental Engineering for Disaster Recovery (A06, 11:00 – 12:30, August 16)” was co-organized by the Japanese Geotechnical Society’s Technical Committee on Recovered Geo-Materials chaired by Takeshi Katsumi, who is also acting as TCB Secretary. Six papers among 9 papers presented in this session were related to the recovery from the 2011 East Japan earthquake and tsunami. The session was moderated by Takeshi Katsumi with Hideo Komine.



TCB Session Chicago Attendants

Future Topics

In previous meetings, the board of the TC-B discussed their plans for the upcoming year and also introduced these to IGS Council.

The TC-B is planning to continue their work on being involved and supporting scientific conferences with papers, lectures, sessions and workshops, such as GeoFrontiers (Orlando, USA) and GeoAfrica (Marrakech, Morocco) both being held in 2017. Additionally a joint workshop with TC-SR is tentatively planned for Vienna in 2017. Furthermore, the TC-B wants to activate the sub TC-B groups Mining and Coal-Ash and continuously update the Regulation and Recommendation presentation.

Any interested individuals interested in actively participating in the TC-B group can contact the board or the IGS secretary at any time:

Chair:

Kent P. von Maubeuge,
kvmaubeuge@naue.com

Co-Chair:

Boyd J. Ramsey
bramsey@gseworld.com

Co-Chair:

Dr. Nathalie Touze-Foltz
nathalie.touze@irstea.fr

Secretary:

Dr. Eng. Takeshi Katsumi
katsumi.takeshi.6v@kyoto-u.ac.jp

IGS Secretariat:

Terry Ann Paulo
IGSsec@geosyntheticssociety.org



TCB board members in Geo-Chicago 2016

(from left to right, Kent von Maubeuge, Boyd Ramsey, Nathalie Touze-Foltz, Takeshi Katsumi)

Reported by

Kent von Maubeuge – Chair of TC-B

IGS TC-SR Activities Report

The IGS TC Soil Reinforcement (IGS TC-SR) was present at the 3 Regional IGS Conferences in 2016.

At the **Geoamericas 2016** the meeting of the IGS TC-SR was led by Richard Bathurst. Unfortunately the number of participants was very low, may be due to the outstanding location of Miami and the extensive social program of the conference.

Within **EuroGeo6** held in Ljubljana (Slovenia) the IGS TC-SR organized a special section with the title “Geosynthetic - Soil – Reinforcement (Principles, Design Models, Standards and Research)” chaired by G. Bräu. The following presentations were given:

- G. Horgan, H. Hangan, R. Durand, M. Vaniček, Design of Geosynthetic Reinforced Structures in Accordance with European Standards
- L. Vollmert, Road Reinforcement - State of the Art in Practice, Regulation and Research
- Doulala-Rigby, Yuli, The Use of Polymeric Geogrids in Structures with Non-Standard Reinforced Fills – Durability Considerations and Benefits
- C. Lackner, Interaction Behaviour of Soil and Geogrid Reinforcement in Physical Modelling (only pdf caused by illness)
- O. Detert, Embankments, Slopes and Walls - State of the Art in Practice and Research
- E. Güler, Reinforced Soil Structures in Seismic Conditions - State of the Art in Practice and Research
- F. Jacobs, Modeling the Deformation of a Slope Veneer Reinforcement in the Anchor Trench.
- S. van Eekelen, Piled Embankments - State of the Art in Regulation and Research

The slides of the presentations are available for the participants through the updated proceedings of EuroGeo6.

The IGS TC-SR membership meeting was well attended by about 30 persons. Besides the reports about the activities of the TC, the participants have been informed about the actual situation several projects:

- The development of the European regulations EuroCode 7 “Geotechnical Design” is ongoing and the soil reinforcement with geosynthetics, steel and soil nails will be added. A special subgroup (CEN TC 250, SC7, WG3 Taskgroup 6) under the leadership of Nicolas Freitag (France) is dealing with this theme.
- Within ISO TC 221 “Geosynthetics” (chaired by Steve Corbet, UK) a working group is dealing with “Design using Geosynthetics” (WG 6, chaired by Derek Smith, UK). Subgroup PG 7 with its chair Robert Lozano (USA) takes the part “Reinforcement” and does this in liaison with the above mentioned taskgroup of TC 250.
- The actual liaison to TC 211 Ground Improvement of ISSMGE is done by the secretary of TC-SR Yoshihisa Miyata (Japan). Further information about TC 211 can be found at their webpage: www.tc211.be

At GeoAsia 2016 in New Delhi (India) the membership meeting of IGS TC-SR was held by Y. Miyata. About 15 persons participated and received informations about the ISSMGE Asian regional conference in 2015 (see also IGS News 01/2016) and the actual activities and plans of the TC.

The actual projects for IGS TC-SR are

- The review and update of the reinforcement relevant leaflets of IGS and
- The preparation of special events for the GeoAfrica 2017 (as it is the next regional conference of IGS) and the 11ICG in 2018 (the international IGS conference).

Another main topic for all TC's of IGS is the initiative to hold special standalone events (e.g. workshops) about "hot topics" within a TC's theme for specialists. For TC-SR this was taken up immediately and a venue and date was already communicated during EuroGeo6 and GeoAsia 2016. Unfortunately the date cannot be kept due to IGS formalism and must be postponed, a new date will be announced as soon as possible.

Reported by

Gerhard Bräu – Chair of TC-SR

IGS TC-H Activities Report

This year has been very busy for TC-H, the Technical Committee on "Hydraulic Applications: Drainage, Erosion Control, Coastal Protection".

After its official formation, approved during the Council held in Seoul, Korea, in June 2015,

TC-H has consolidated its membership, which now counts more than 60 members, and started the activities.

The new IGS web site was launched during GeoAmericas 2016 in April, and TC-H included its official page (<http://www.geosyntheticssociety.org/committees/technical-hydraulics/>).

One very important activity of TC-H during 2016 has been the drafting of four new IGS leaflets: Geosynthetics Classification, Geosynthetics for filtration and drainage, Geosynthetics for erosion control, Geosynthetics for coastal protection. Such activity lasted several months and involved the active participation of many TC-H members.

Moreover, during 2016 TC-H has organized 3 main technical events, with great success and attentive attendance: the Special Session on Drainage at GeoAmericas 2016 in Miami in April; the Special Session on Erosion Control at Eurogeo 6 in Ljubljana in September, and the Workshop on Coastal Protection: The State of The Art, at GeoAsia 2016 in Delhi in November. The summaries of the 3 events are hereinafter reported.

Special Session on Drainage at GeoAmericas 2016

The Special Session on Drainage was held on the last day of the Conference; it was chaired by TC-H chair Eng. Pietro Rimoldi (Italy), and it lasted 1.5 hours; 6 invited papers have been presented.

The first presentation was by Prof. Chiwan Wayne Hsieh of the National Pingtung University of Science & Technology in Taiwan, on "Geosynthetics hydraulic and drainage applications for extreme natural and weather events".

The second paper was "Geotextile filters - 25+ years of research and experience" by Prof. Robert D. Holtz, University of Washington (USA), and Dr Barry R. Christopher, Geotechnical Engineering Consultant. Roswell, Georgia (USA).

The third presentation was by Dr Sam Allen, Vice President, TRI Environmental, Austin, Texas (USA), on "The determination of hydraulic performance of geosynthetic drains".

The fourth presentation was by the TC-H Chair, Eng. Pietro Rimoldi (Italy), on "Design of planar geosynthetic drainage systems".

The fifth presentation was by Prof. Dennes Bergado, Distinguished Adjunct Professor, Asian Institute of Technology, Bangkok, Thailand, on "Pvd soft ground improvement with surcharge, vacuum and heat preloading: laboratory and field results".

The sixth presentation was by Dr. George Koerner, Geosynthetic Institute, Folsom, PA (USA), on "Significance of proper geotextile filter selection on the hydraulic performance of drainage geocomposites".

All papers are included in the Proceedings of GeoAmericas 2016.

Special Session on Erosion Control at Eurogeo 6

The Special Session was held on the second day of the Conference; it was chaired by TC-H chair Eng. Pietro Rimoldi (Italy), and it lasted 2 hours; 5 invited papers have been presented addressing both erosion control on slopes and erosion control of canal and river banks.

The first presentation was by Prof. Chiwan Wayne Hsieh of the National Pingtung University of Science & Technology in Taiwan, on "Fundamentals of erosion control on slopes and the role of geosynthetics".

The second presentation was by Dr. Michael Heibaum, BAW – Federal Waterways Engineering and Research Institute, Karlsruhe (Germany), on "The importance of geosynthetics in erosion control of canal and river banks".

The third paper was "Laboratory tests for evaluating the performance of geosynthetics for surface erosion control", by Dr. N. Touze-Foltz (Irstea, France) and H. Zanzinger, SKZ German Plastics Center, Würzburg (Germany), and it was presented by H. Zanzinger.

The fourth presentation was by the TC-H Chair, Eng. Pietro Rimoldi (Italy), on "Design of geosynthetics for erosion control on slopes".

The fifth presentation was by Eng. David Shercliff, ABG Geosynthetics Ltd (U.K.), on "Accessible design methods

for geosynthetics used for erosion control on channel and river banks”.

All papers are included in the Proceedings of EuroGeo 6.

Workshop on Coastal Protection: The State of the Art, at GeoAsia 2016

TC-H organized its first full day workshop, as a pre-conference event at GeoAsia 2016.

The workshop included a morning and a afternoon sessions.

Eng. Pietro Rimoldi (Italy, TC-H Chair) was prevented at the last minute from attending the Conference and chairing the workshop, due to a surgery operation.

Anyway the workshop was broadly attended and recorded full success.

The chief guest of the inauguration session of the Workshop on “Coastal Protection: The State of the Art” was Mr. A. K Ganju, retired member of Central Water Commission and earlier Chairman of Ganga Flood Control Commission and guest of honour of the session was Prof. Chandan Ghosh of National Institute of Disaster Management, India (NIDM). For the whole work shop, Mr. Anil Kumar Gopinath (Former Chief Engineer, Water Resources Department of Kerala and Vice President coastal, Maccaferri Environmental Solutions Pvt. Ltd., India) acted as the main coordinator in the absence of Mr. Pietro Rimoldi, Chairman, International Geosynthetics Society (IGS) TC-H and Ms. Minimol Korulla (Vice President Technical, Maccaferri Environmental Solutions Pvt. Ltd., India) acted as main anchor of the session. Further, Mr. V.K. Kanjlia, Member Secretary, Indian Chapter of IGS has addressed the audience.

The first session was on the “The State of the Art” and was chaired by Mr. Anil Kumar Gopinath, co-chaired by Dr. Chandan Gosh, in which six papers were discussed.

The first paper was on “Fundamentals of Coastal Protection and the Role of Geosynthetics” by Prof. Chiwan Wayne Hsieh (Co-Chairman, IGS TC-H), from National Pingtung University of Science & Technology, Taiwan.

The author of the next paper Mr. Ben Sullivan, HOV Environment, India was absent and the paper on “Applications of Geosynthetics for Integral Solutions for Beach Restoration and Long-Term Management” was briefed by the coordinator Mr. Anil Kumar Gopinath.

The third paper was by Dr. K. Rajagopal, of the Indian Institute of Technology Madras on “Laboratory Tests for Index and Performance Properties of Geosynthetics for Coastal Protection”.

The fourth paper on “Design of Geosynthetic Tubes for Coastal Protection” by Mr. Pietro Rimoldi was presented by Mr. Rudra Budbhatti and Mr. Deeraj Kumar of Maccaferri Environmental Solutions Pvt Ltd, India in his absence.

The fifth paper presented was by Dr. Vijaya Ravichandran, National Institute of Ocean Technology, India on “Design of Sustainable Shore Protection Solution using Geosynthetic Tubes”.

The sixth and final paper of the forenoon session was presented by Ms. Minimol Korulla (Vice President, Maccaferri Environmental Solutions Pvt. Ltd, India) and Mr. Deeraj Kumar (Design engineer, Maccaferri Environmental Solutions Pvt. Ltd, India) on the topic “Selection of Suitable Geotextile Materials for Geotextile Containment Systems - Onshore and Offshore Structures”.

Afternoon session of the workshop started with a panel discussion on the topic “Geosynthetic systems used for coastal hazards”. The panel members were Dr. K Rajagopal, Mr. Sudhir Mathur (Central Road Research Institute (CRRI), India), Mr. Anilkumar Gopinath, Dr. Vijaya Ravichandran and Prof. R K Bhandari (Former Director, CSIR-CBRI Roorkee) as the moderator.

The second session on Industry Experience had 3 papers on the theme “Experiences of Coastal Protection Projects with the Use of Geosynthetics in the Asian Region”. The session was chaired by Prof. RK Bhandari (Former Director, CSIR- CBRI Roorkee) and co-chaired by Mr. Sudhir Mathur (Central Road Research Institute (CRRI), India).

The session started with the first paper by Mr. Tiru Kulkarni (Garware-Wall Ropes Ltd., India) on “Sea Wall Embankment at Pentha, Odisha - An Indian Experience on Sea Shore Protection using Geotextile Tubes”.

The next paper “Importance in Considering Site Specific Externalities while designing Geosynthetic Tubes for Off-shore Coastal Structures: A Case Study” was presented by Mr. Anilkumar Gopinath.

The last paper was on the “Experiences of Coastal Protection Projects with the Use of Geosynthetics in the Asian Region” was by – Dr. (Ms) Vijaya Ravichandran, National Institute of Ocean Technology, India.

The last session of the Workshop was a panel discussion on the topic “Future of geosynthetics in coastal sector” with panel members as Mr. R.R Sambharia (Director, BCD, E&NE, CWC, New Delhi, India), Mr. Rakesh Kshyap (Director, BCD, NW&S, CWC, New delhi, India), Dr. Manoj Verma (President, Indian National Group of ISRM, Mr. Vikramjiet Roy (Managing Director, Maccaferri environmental solutions pvt ltd., India), Mr. Ashutosh Kaushik (Chief Executive Officer, PARSAN, India), Mr. Tiru Kulkarni (President - Geosynthetics Division, Garware Wall Ropes Ltd Garware-Wall Ropes Ltd., India), Mr. Nawraj Bhatta (Vice president, Intercontinental Consultants Technocrats, India), Mr. Anilkumar Gopinath (Vice President, Coastal, Maccaferri environmental solutions pvt ltd., India) and Dr. R. K Bhandari as the moderator.

The members emphasized the need for documenting the failures along with the success stories of works undertaken using geosynthetics for future corrections and development.

The success in use of geosystems in adverse conditions like a tidal bore attack was pointed out to emphasize that the future is bright in the use of geosynthetic systems for coastal and estuary protections.

Another important issue raised was designs shall be planned not only from the past experience but also from the future needs and anticipated problems.

Extended coast lines, increasing concern of environment, greening and carbon footprint reduction indicates the huge potential of geosynthetics in coastal applications. Also it was highlighted that India has not only coastline but also huge floodplains where geosynthetics can be of huge requirement.

The full TC-H Activities Report 2016 can be downloaded at <http://www.geosyntheticssociety.org/wp-content/uploads/2016/12/TCH-ACTIVITIES-REPORT-2016-12.pdf>

Reported by

Pietro Rimoldi, Chair, IGS TC-H - Technical Committee on Hydraulic Applications

IGS Young Members

IGS Young Members at EuroGeo 6 Ljubljana, Slovenia, 25 - 28 September 2016

During the 6th European conference for Geosynthetics, located in Ljubljana, the scenic capital city of Slovenia, young members from around the world met to network and spread ideas on how young members can contribute to promote and improve geosynthetic technology. The 4-day conference was well attended by the young members of the IGS, coming from industrial suppliers, consultants, contractors, clients and academics. Throughout the conference there were Young Member focused events including a student award session, evening social event and formal meeting all aimed to promote the participation and the involvement of the young members within the IGS.

On Tuesday 27th September, a technical session was dedicated to promote the research of winners from regional IGS chapters. The presenters were: Gunes Babagiray (Turkey), Talia da Silva (UK), Carmine Gerardo Gragnano (Italy), Felix Jacobs (Germany) and Francis Tano (France). The presentations were of very high scientific quality and the session was very well attended.

An informal evening meal was organised after the first full day of the conference. The event at 'Marley and Me' in the centre of Ljubljana was attended by 22 young members. Presenting young members with the opportunity to establish connections with peers from across the world in a casual setting.

A formal meeting of young members took place on the morning of the final day of the conference, at which members were updated and able to provide feedback on the sub-committee's upcoming initiatives and activities. The attendance from young members was very high and pro-active with a lot of new ideas for future activities. The group also announced its initiatives to engage more young members and further drive up their participation at conferences by increasing the student sponsorship and helping young member exposure at future events.

The successful events were organised by Irene Inan (President of the IGS Young Members) and Laura Carbone (Vice-President of the IGS Young Members) and their efforts were greatly appreciated by the young members that attended.

If you are a member of the IGS and want to get involved in the Young Members Committee or attend future events like this please visit <http://www.geosyntheticssociety.org/committees/young-members-committee/> for more information.



Young Members Dinner at EuroGeo6 in Ljubljana, Slovenia

Reported by

Ian Scotland, Young Member from UK

Conference Reports

EuroGeo 2016

Ljubljana, Slovenia, 25 -28 September 2016



Eurogeo6 hosted by IGS Turkish Chapter took place at The GR – Ljubljana Exhibition and Convention Centre in Ljubljana/Slovenia between September 25 - 28, 2016.

The success of the conference was with the support of the 7 Platinum, 6 Gold and 7 Silver sponsors. There were 46 exhibitor companies from 20 countries. 683 participants from 54 countries followed the conference. Turkey had the lead with 71 participants, Italy with 54 in the second place, France and Germany shared the third place with 39 participants.

The first L.M.N.S. Lecture, a new lecture series accepted by IGS to be delivered at each Regional European Geosynthetics Conference, named after E. Leflaive (Chairman, France), A. McGown (United Kingdom), J. Nieuwenhuis (Netherlands) and M. Sotton (France) who were the four-members of the organizing committee of the first International Conference of Geosynthetics which took place in Paris, France, in April 1977; “Evolution in Design of Geotextile Filters” was delivered by Dr. Daniele Cazzuffi.

Following Keynote lectures were delivered:

Following Keynote lectures were delivered:

- “The Behaviour of “Alive” Earthworks with Geosynthetics after Several Decades” by Prof. J.P. Gourc and Prof. P. Delmas
- “Geosynthetics Interface Properties under Static and Dynamic Loads” by Prof. N. Moracci
- “Geosynthetics in Underground Constructions” by Prof. C. Yoo
- “Geosynthetic Reinforcement Applications” Prof. M. Ziegler

7 different speciality sessions were organized by the following experts:

- Geosynthetic Barriers by K. v. Maubeuge and Dr. N. Touze-Foltz
- Geosynthetics in Dam Construction by Dr. Eng. A. Scuero
- Geosynthetic Reinforcement Applications by G. Bräu
- Geosynthetics in Road Construction by Prof. E. Tutumluer
- Surface Erosion Control and Drainage by P. Rimoldi
- Geosynthetics Under Earthquake Shaking by Prof. G. Athanasopoulos and Assoc.Prof. A. Edinçliler
- Wrinkles, Bridging and Ballasting Geomembrane During Liner Installation by Dr. I. Peggs



Chairman of EuroGeo6 Erol Güler



Auditorium in main lecture hall



First L.M.N.S Lecturer Danielle Cazzuffi with chairman of EuroGeo6 Erol Güler



Organizing Committee



Festive evening

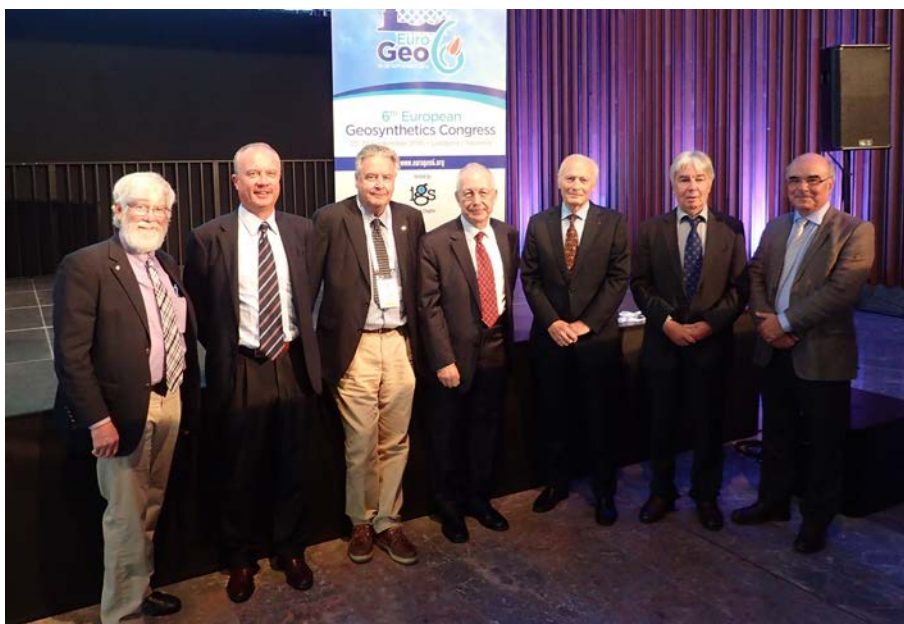


Dancing late at the festive evening

The Congress started with the traditional Welcome Reception on September 25. The Gala Dinner was at the GrandHotel Union and the participants enjoyed the music and demonstrated their abilities that they are not only experts in geosynthetics but also in dancing.

As usual, at the closing ceremony, the presentations for the 11th ICG in Seoul, Korea and Eurogeo7 in Warsaw, Poland took place.

Reported by Prof. Erol Güler and Hakan Özcelik, Organizers of the EuroGeo 6



IGS Pioneers accompanying Prof. Erol Güler at EuroGeo6; from left to right: Prof. Kerry Rowe, Dr. Daniele Cazzuffi, Pietro Sembenelli, Prof. Erol Güler, Dr.J.P. Giroud, Prof. J.P. Gourc and Prof. Philipp Delmas

GeoAsia 2016

6th Asian Regional Conference on Geosynthetics

New Delhi, India, 8 – 11 November 2016



The 6th Asian Regional Conference on Geosynthetics - Geosynthetics for Infrastructure Development, was jointly organized by the Indian Chapter of International Geosynthetics Society (IGS) and Central Board of Irrigation and Power (CBIP), from 8 to 11 November, 2016 at The Leela Ambience Convention Hotel, Delhi.

This conference was awarded to the Indian Chapter in the year 2012. The Indian Chapter had the honour of hosting the First Asian Regional Conference on Geosynthetics in November 1997 in Bangalore and almost after 19 years, India successfully hosted the present series of the conference.

Thrust area for this conference was use of Geosynthetics in infrastructure development, particularly in the fields of Roads and Railways, Ground Improvement, Coastal and River Bank Erosion, Underground Structures, Hydraulics Structures, Reinforced Application and Environmental Applications. The conference also had technical sessions on applications of Natural Fibre Geotextiles, besides on Geosynthetic Testing.

The Conference was inaugurated by Hon'ble Minister of Railways, Govt. of India, Shri Suresh Prabhu, through Video Message.

Some of the highlights of the event were:

- Pre Conference Workshop on Coastal Protection and Training Course on Geosynthetics
- Heritage Lecture on Indian Perspectives – Achievements and Projections (Dr. G.V. Rao, India)
- Mercer Lecture on Stabilization of Paved Roads using Geosynthetics (Prof. Jorge G. Zornberg, Immediate Past-President, International Geosynthetics Society)
- Plenary Sessions: 04
- Invited Lectures: 14
- Invited Lectures: 07
- Parallel Technical Sessions: 14, with 85 papers, from 16 countries, scheduled for oral and poster presentations
- IGS Student Paper Awards Session: 01
- Exhibitors: 40 from 13 countries
- Release of Special Publications on “History of Geosynthetics in India - Case Studies” and “Coir Geotextiles (Coir Bhoovastra) for Sustainable Infrastructure”
- No. of participants: 360 from 24 Countries

Following is the list of Keynote & Invited Lectures, IGS Student Paper Awards:

Plenary Session

- **Heritage Lecture** - “Indian Perspectives – Achievements and Projections” – *Dr. G.V. Rao, India*
- **Mercer Lecture: Stabilization of Paved Roads using Geosynthetics** – *Prof. Jorge G. Zornberg, Immediate Past-President, International Geosynthetics Society*

Keynote Lectures

- General Overview of Experimental Studies on Seismic Stability of Geosynthetic Reinforced Soil Structures and Recent Research Activities – *Dr. K. Watanabe and M. Tateyama, Railway Technical Research Institute, Japan*
- Recent Advances in Geosynthetic Stabilization of Roads: Terminologies, Products and Mechanisms - *Prof. Jie Han, Department of Civil, Environment & Architectural Engineering, The University of Kansas, USA*
- Application of Geosynthetics in Restoration of Canals: Case Studies of Sardar Sarovar Project - *Mr. Vivek Kapadia, Water Resources Department, Government of Gujarat, India*
- Environmental Aspects in Geosynthetic-Soil Reinforcement Structures: The Role of Vegetation - *Dr. D. Cazzuffi, CESI SpA, Italy and D. Giofrè & G. Cardile, Mediterranean University of Reggio Calabria, Italy*
- Geosynthetics Reinforced Soil Walls with Complex Geometries - From Fundamentals to Research Findings - *Prof. C. Yoo, School of Civil, Architectural Engineering and Landscape Architecture, Sungkyunkwan University, Korea*
- Analytical Methods for the Reinforcement Loads of Geosynthetic Reinforced Soil Retaining Walls - *Prof. Huabei Liu, School of Civil Engineering and Mechanics, Huazhong University of Science and Technology, China*
- Behaviour of Geosynthetic Encased Granular Columns Under Vertical and Lateral Loading - *Dr. K. Rajagopal and S.R. Mohapatra, Department of Civil Engineering, Indian Institute of Technology Madras*
- System and Discussion of Geosynthetic Reinforced Embankments over Soft Soils - *Dr. C. Xu, R.T. Liu, C. Liang and F.F. Ren, Department of Geotechnical Engineering, College of Civil Engineering, Tongji University, China*
- PVD Soft Ground Improvement of Soft Bangkok Clay with Surcharge, Vacuum and Thermal Preloading: A Comparative Study - *Dr. D.T. Bergado & S. Artidteang, Asian Institute of Technology, Thailand and P. Voottipruex,*

King Mongkut's University of Technology North Bangkok, Thailand

- Behaviour of Geocell-Reinforced Granular Base under Repeated Loading - *Dr. G L Sivakumar Babu, Lekshmi Suku and Sudheer S Prabhu, Department of Civil Engineering, Indian Institute of Science*
- Geosynthetics Field Testing: Optimizing Geomembrane Field Performance (Containment) - *Mr. Sam R. Allen and Abigail Beck-Gilson, TRI Environmental, Inc., USA*
- 3 Decades of Usage of Geosynthetics in Coastal and River Protection in India - *Mr. M. Venkataraman, Vice President, Indian Chapter of IGS and Geosynthetic & Geotechnical Consultant, India*
- Geotextile Filters and Containment Systems for Riverbank and Coastal Erosion Protection in Asia - *Mr. Yee Tack Weng, TenCate, Malaysia*
- Coir Geotextiles in Infrastructure Projects - *Dr. K. Balan, Rajadhani Institute of Engineering and Technology, India*

Invited Lectures

- Fundamentals of Coastal Protection and the Role of Geosynthetics - *Dr. Chiwan Wayne Hsieh and Muji Huang, National Pingtung University of Science & Technology, Taiwan*
- The Role of Geosynthetics in Marine and Coastal Engineering, Challenges and Opportunities from Past to Future - *Mr. Mohammad Reza Ashghbousi, Secretary, Iranian Chapter of IGS*
- Case Study on the Reservoir Seepage at Concentrated Solar Thermal Power Plant, Rajasthan, India – *R. K. Anjana, Dr. D. N. Arnepalli, S. Jain, P. Cherishma & S. R. Gandhi, Department of Civil Engineering, Indian Institute of Technology Madras and K. Divakara Rao, Areva Renewable Energies India Pvt. Ltd.*
- Efficacy of Jute Geotextiles for Hill Slope Erosion Control, Rural Road Construction and River Bank Protection - *Dr. Abdul Jabbar Khan, Professor, Department of Civil Engineering, Bangladesh University of Engineering & Technology*
- Geosynthetic Testing – Need and its Approach - *Dr. R. Chitra and Manish Gupta, Central Soil & Materials Research Station, India*
- Recent GRS Structures Replacing Conventional Type Structures for Railways in Japan - *Prof. F. Tatsuoka, Tokyo University of Science, Japan and M. Tateyama & K. Watanabe, Railway Technical Research Institute, Japan*
- Observations on the Practical Design of Reinforced Soil Structures with Specific Reference to India - *Dr. J. Thomas, Geotechnical Consultant and Professor, Albertian Institute of Science and Technology Kochi, India*

IGS Student Paper Awards

- Structurally Modified Coir Geomesh for Erosion Control and Disaster Management in Lower Himalayan Regions - *Suresh Kumar S, India*
- Laboratory Experiments on Resistance of River Levee with Geosynthetic-Reinforced Soil against Overflow Erosion - *Y. Kurakami, Japan*
- A Study on the Settlement Reduction of Artificial Reef using Geosynthetics - *D.H. Yun, South Korea*
- Electro-kinetic Techniques and Geotextiles for High Water Content Sludge Dehydration Tests - *Jeng-Han Wu, Taiwan*
- Finite Element Simulation on External Stability of the Bearing Reinforcement Earth Wall – *Cherdsak Suksiripattanapong, Thailand*
- Role of Prestress in Geogrid of Confined-Reinforced Earth Method to Mitigate Bridge Approach Settlement - *Ho Manh Hung, Vietnam*
- Soil-geosynthetic Interface Strength Properties from Inclined Plane and Direct Shear Tests – A Comparative Analysis - *F. B. Ferreira, Portugal*



Introduction of the Pre-Conference Workshop on “Coastal Protection” by Mr. V.K. Kanjlia, Member Secretary, Indian Chapter of IGS



Mercer Lecture on “Stabilization of Paved Roads using Geosynthetics” by Prof. Jorge G. Zornberg, Immediate Past President, IGS



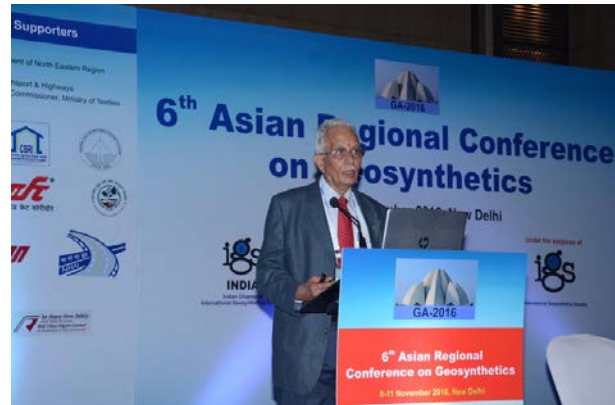
Lecture on “Applications of Geosynthetics in Water Resources Projects” by Mr. M. Venkataraman, Vice President, Indian Chapter of IGS, during the Pre-Conference Training Course on “Geosynthetics”



Release of Special Publications on “History of Geosynthetics in Indian – Case Studies” during the Inaugural Session of the Conference



Keynote Lecture by Dr. D. Cazzuffi, Past President, IGS



Heritage Lecture on “Indian Perspectives – Achievements and Projections” by Dr. G.V. Rao, Former President, Indian Chapter of IGS

Reported by

A.C. Gupta, IGS News Correspondent for IGS India, and Uday Chander, Organizing Committee of GeoAsia 2016

3rd International Conference on Transportation Geotechnics (3rd ICTG 2016) – Workshop on Geosynthetics Guimarães, Portugal, 04 - 07 September 2016

The workshop on Geosynthetics in Transportation Geotechnics was held prior to the Third International Conference on Transportation Geotechnics (4 - 7 September 2016) in Guimarães, Portugal (<http://civil.uminho.pt/3rd-ICTG2016/index.php>). The one day workshop (4 September 2016) took place at the University of Minho and was organized by the Portuguese Geotechnical Society (SPG), the Portuguese Chapter of the International Geosynthetic Society (IGS), the University of Minho and the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE). The Organizing Committee was composed of Professor Fumio Tatsuoka (Tokyo University of Science, Japan), Professor Jorge Zornberg (The University of Texas at Austin, USA), Engineer José Luís Machado do Vale (President of the Portuguese Chapter of the International Geosynthetic Society, Portugal) and Professor José Neves (Instituto Superior Técnico, University of Lisbon, Portugal).



Audience during the workshop

The main topics of the workshop were the state-of-the-art of the use of geosynthetics in transportation geotechnics, theory and research of geosynthetic engineering for transportation engineering, as well as key issues in practice and perspective.

The workshop was arranged into two keynote lectures by Professor Fumio Tatsuoka and Professor Jorge Zornberg and nine lectures presented by specialists from Netherlands, Slovenia, Portugal, Australia, USA and India, related to geosynthetic-reinforced soil structures and the use of geosynthetics in railway and roadway systems. In addition, a technical exhibition was organized for the workshop sponsors.

A total of 33 participants including engineers, contractors, academics and product specialists attended the workshop and promoted a highly exchange of ideas and discussion. The special issue on the Use of Geosynthetics in Transportation Geotechnics edited by the Transportation Geotechnics Journal (Elsevier) was also announced in this opportunity (<http://www.sciencedirect.com/science/journal/22143912/8>).

The University of Minho (Portugal) published the extended abstracts book (<https://doi.org/10.5281/zenodo.61306>) and the oral presentations e-book (<https://doi.org/10.5281/zenodo.160190>) of the workshop.

Reported by

José Neves, Secretary General and IGS News Correspondent of IGS Portugal, University of Lisbon

Announcement of the International Conference of IGS

11th ICG International Conference on Geosynthetics Geosynthetics : Innovative Solutions for Sustainable Development Seoul, Korea, 16 – 21 September 2018



On behalf of the Organizing Committee, it is my great honor and pleasure to invite you to the 11th International Conference on Geosynthetics (11ICG), which will be held in Seoul, Korea from September 16 to 21, 2018.

The Korean Geosynthetics Society (KGSS) will have the privilege of hosting 11ICG in Korea, and plans to go to great lengths to ensure the conference surpasses all expectations. The 11ICG will provide all participants a firm platform for a meaningful academic, professional, social and cultural experience. The theme of the 11ICG is “Geosynthetics: Innovative Solutions for Sustainable Development,” and will cover diverse disciplines of geosynthetics from fundamentals to applications.

With the vision of making a multidisciplinary conference for the geosynthetics industry and engineers, we plan to offer special events as well as a very dynamic and stimulating array of scientific and practical engineering programs. At 11ICG, academia and industry will gather in force to not only show their best, but to share valuable ideas and develop new friendships.

11ICG will provide a comprehensive overview of the most recent developments in the field of geosynthetics, the latest technologies and applications, and a unique and extensive technical exhibition. With fascinating ancient traditions and ultramodern lifestyle, the city of Seoul will surely be the center of many unforgettable moments.

We look forward to welcoming you in Seoul, Korea!

Sincerely yours,



Prof. Chungsik Yoo
 Chair, Organizing Committee of 11ICG
 Vice President, International Geosynthetics Society
 President, Korean Geosynthetics Society

Preliminary Program

	Sep.16 (Sun)	Sep.17 (Mon)	Sep.18(Tue)	Sep.19 (Wed)	Sep.20 (Thu)	Sep.21(Fri)
08:00						
09:00		Opening Ceremony				
10:00		Plenary Lecture	Plenary Lecture	Plenary Lecture	Plenary Lecture	Technical Visit
11:00		Break	Break	Break	Break	
12:00		Plenary Lecture	Parallel Sessions	Parallel Sessions	Parallel Sessions	
13:00		Lunch	Lunch	Lunch	Lunch	
14:00		Parallel Sessions	Parallel Sessions	Parallel Sessions	Parallel Sessions	
15:00		Break	Break	Break	Closing Ceremony	
16:00		Parallel Sessions	Parallel Sessions	General Assembly		
17:00		Happy Hour	Special Event	Conference Dinner	IGS Council Dinner	
18:00	Welcome Reception					
19:00						
20:00						

Call for Abstracts

The Organizing Committee of the 11th International Conference on Geosynthetics (11 ICG) invites all interested geotechnical and geosynthetics professionals and academics to submit abstracts. Abstracts should be submitted online. Extended versions of selected papers from 11 ICG will be published in a Special Issue of Geotextiles and Geomembranes, an official journal of the International Geosynthetics Society. For detailed information, please visit the 11 ICG Website.

Abstract Submission Deadline: **December 30, 2016**

Theme and Topics

- Geosynthetics: Innovative Solutions for Sustainable Development
- Geosynthetic Barriers
- Geosynthetics in Filtration, Drainage and Erosion Control
- Reinforced Walls and Slopes
- Ground Improvement using Geosynthetics
- Roads, Railways and other Transportation Applications

- Soil-Geosynthetic Interaction
- Hydraulic Applications
- Innovative Uses and New Developments
- Case Histories
- Durability and Long Term Performance
- Physical and Numerical Analysis
- Geosynthetic Properties and Testing
- Quality Control and Quality Assurance
- Design Approaches and other Applications

Important dates:

- 31 March 2017 Abstract Acceptance Notice
- 29 September 2017 Paper Submission Deadline
- 29 December 2017 Paper Acceptance Notice
- 30 March 2018 Final Paper Submission Deadline
- 30 March 2018 Early Registration Deadline

Announcements of Regional Conferences of IGS

GeoAfrica 2017 – 3rd African Regional Conference on Geosynthetics Marrakech, Morocco, 08 – 11 October 2017



GeoAfrica 2017 will be held between 08 - 11 October 2017 in Marrakech, Morocco. This major event marks the third African Regional Conference on Geosynthetics. To be held under the auspices of the International Geosynthetics Society (IGS) and hosted and organized by the IGS Moroccan Chapter, the event offers an exceptional opportunity for geosynthetics-related engineering and construction professionals to interact with the African continent's growing infrastructure.

Keynote & Lectures

- Geosynthetics for sustainable development, Mohamed Choura from Sfax / Pr. Ejjaouani
- Lining in hydraulic applications, Manuel Blanco
- Reinforcement of transport infrastructures, Ph. Delmas, Alain Nancey

Speciality Session

- Geosynthetics and functions
- Selection of a geotextile for filtration
- Methodology for reinforcement design
- Choice of Geosynthetics for hydraulic applications

Exhibition

An exhibition will be connected to the conference

Important Dates

- January 15th, 2017 Deadline for submission of abstracts
- April 15th, 2017 Deadline for paper submission
- July 30th, 2017 Submission of final paper and closure of early bird registration
- October 08th, 2017 GeoAfrica Registration
- October 09th, 2017 GeoAfrica conference opening

Further information

contact@geoafrica2017.com
<http://geoafrica2017.com/>

Geotechnical Frontiers 2017

Orlando, Florida, USA, 12 - 15 March 2017

Geotechnical Frontiers 2017 is a conference and trade show for the geotechnical, civil, and geo-professional communities. This specialty conference held every six years (GeoFrontiers 2005 in Austin, Texas and 2011 in Dallas) is a partnership with IFAI's biennial Geosynthetics conference and the annual GeoCongress of ASCE's Geo-Institute. This event is where the industry unites to share developments in geotechnical engineering and technologies. The four-day event is organized by the Industrial Fabrics Association International's Geosynthetic Materials Association and the American Society of Civil Engineer's [Geo-Institute](#). It is supported by the North American Geosynthetics Society under the auspices of the International Geosynthetics Society.

For more information please contact:

Barbara Connett, Secretary General: bjconnett@ifai.com

EurAsian Geotextiles Symposium (EAGS)

Beijing, 07 - 08 June 2017



Organised under the auspices of IGS, the EurAsian Geotextiles Symposium (EAGS) will take place in Beijing on 7 - 8 June 2017. The first event of its kind, the EAGS is a two-day conference and exhibition covering markets, products and technology for geotextiles. Featuring a conference and an exhibition, the EAGS is designed to cover both nonwoven and woven geotextiles and to encompass the entire value chain, from raw materials to buyers and users of geotextiles, in Greater Europe and Asia.

The Symposium's programme will include the following themes:

- Best practice in specifications of geotextiles
 - Improved understanding of the market for geotextiles
- Identification of new opportunities for growth

Abstracts including a proposed title, 3 - 4 bullet points summarising the presentation and the full contact details of the speaker should be sent to eva.fabbri@edana.org by 30 September 2016.

This event will be co-organised by CNITA, the China Nonwovens & Industrial Textiles Association, and EDANA, the leading global association serving the nonwovens and related industries. The Symposium is focussed on geotextiles in Eurasia and aimed at supporting the growth of the geotextiles market in China and in Asia as a whole and helping companies access this dynamic market.

The EAGS is designed to offer extensive networking opportunities, attracting leading decision makers from across the geotextiles supply chain. Top level speakers will give presentations on recent and upcoming developments of 2 relevance for geotextiles markets in Europe and Asia and the table top exhibition will provide a unique opportunity for companies to meet new and existing business partners and promote their products and services.

Further information

Is available at: <http://www.edana.org/educationevents/conferences-and-symposia/event-detail/eurasia-geotextiles-symposium-2017>

*Reported by
Pierre Conrath, Edana*

Hellenic Geosynthetics Society (HGS) Changes in Council

Further to a resignation declaration letter by the former Secretary Mrs E. Kapogianni of the Hellenic Geosynthetics Society HGS (dated 10/10/2016), a new council meeting was recently held in Athens (18/10/2016) with the following relative decisions:

- a) Prof. I. Markou participates in the new Council as regular member.
- b) Mr. A. Ritsos has taken over the Secretary function of the Council.

Therefore, the new Council Composition of the HGS for the term 2016-2019 is actually the following:

President: Mr Anastasios KOLLIOS (akollios@edafomichaniki.gr)

Vice-President: Mr Ioannis FIKIRIS (ifikiris@edafos.gr)

Treasurer: Mr Nikolaos TSATSOS (ntsatsos@geognosi.gr)

Secretary: Mr Apostolos RITSOS (aritsos@edafomichaniki.gr)

Regular Council Members:

Mr Ioannis MARKOU (imarkou@civil.duth.gr)

Mr Christos STRATAKOS (stratakos@namanet.gr)

Mr Dimitrios ZEKOS (zekkos@umichumich.edu)

Reported by

A. Kollios, President of HGS

Report on IGS Educate the Educators Program in China Zhangjiajie, Hunan Province, China, 18 - 19 August 2016

With the great support of IGS and her council members, the Educate the Educators (ETE) program was held on 18 - 19 August 2016 in Zhangjiajie, Hunan Province, China. This program was the first of its kind in China. Prof. Chungsik Yoo, Vice President of IGS, delivered a speech in the opening ceremony to introduce the objectives of IGS and this program. Over 70 people attended the training program, who were from more than 30 colleges and institutes of China. Through this event, Chinese Chapter recruited more than 30 new members of IGS.

ETE is a program developed by the International Geosynthetics Society (IGS). It is a geosynthetics education program specific to supporting educators. It provides core geosynthetic content, background information, and materials for use in the classroom so that participants may include geosynthetics in their engineering curricula.

Lectures were provided by **Prof. Chungsik Yoo** (Sungkyunkwan University), **Prof. Guangxin Li** (Tsinghua University), **Prof. Chiwan Wayne Hsieh** (National Pingtung University of Science and Technology), **Prof. Chao Xu** (Tongji University), **Prof. Guangqing Yang** (Shijiazhuang Railway University), **Mr. Boyd Ramsey** (GSE Lining Technology Inc.) and **Mr. Pietro Rimoldi** (World Tech Engineering), five (5) of whom are IGS council members.

Lectures include types, function and properties of geosynthetics, reinforcement, application of geosynthetics in road-way and railway systems, hydraulic and erosion control, environmental protection, etc. It is rational to believe that ETE program will promote the development of geosynthetics in China and tight the relationship between IGS and her Chinese Chapter.

The program was sponsored by **Maccaferri (China)**, **GSE Environmental**, **Hongxiang New Material**, **Hock Technology** and **Taian Modern Plastics**. All of them are IGS corporate members. Each of sponsors provided showcase of their products in various project applications during the training program.

Besides knowledge of geosynthetics, attendees also had educational discussions on geosynthetics courses for undergraduates and postgraduates. A sample book including 33 types of geosynthetics was provided to attendees for their future educational usage.

Sponsor certificates were issued to sponsors, and Prof. Chao Xu, Chair of Chinese Chapter, extended thanks to IGS, respected lecturers, the sponsors and all attendees in the closing ceremony.

The CCIGS has received very promising feedback on this event. We are now looking forward to more activities in the future.



Participants of the Educate the Educators Program

Reported by
Chao Xu, IGS Council member, China Chapter of IGS

IGS Peru Announces GEOSPERU 2017



IGS Peru is preparing the country's 4th National Congress on Geosynthetics. The biennial event returns to the **Hotel Los Delfines in Lima, Peru 29 – 31 March 2017.**

Abstracts have been accepted through 30 September 2016, with author notifications in mid-October and final papers were due to November 30.

The conference has left the subject matter open to the geosynthetics community. The 2015 edition featured topics of relevance to Peru and the larger international engineering community. These topics included:

- Geosynthetics in road works
- MSE walls and slopes
- Foundation reinforcement (geogrids, geotextiles)
- Geomembrane durability
- CQA of geosynthetic installation
- Testing and laboratory accreditation
- Design and construction with drainage geocomposites
- Seismic reinforcement
- Past, present, and future of geosynthetics

In addition to its technical program, GeosPeru 2017 will offer an international exhibit with companies providing design and CQA engineering services, geosynthetics manufacturing, professional development opportunities, and more.

Major sponsors include TDM, Grupo, Maccaferri, Andex, and Feicheng Lianyi Engineering Plastics.

For more information, visit www.igsperu.org or write asistentepresidencia@igsperu.org or informes3@grupomile-nium.pe.

Call for Nominations – IGS North America Board of Directors

As 2016 draws to a close it's time to start thinking about 2017 and the election of Members to serve on the next [IGS North America Board](#). The Mission of [IGS-NA, formerly NAGS](#), is to provide leadership in advancing geosynthetics education and research to attain their appropriate and wide-spread use as engineering materials as the Chapter of the International Geosynthetic Society (IGS) for the United States of America and Canada.



2017 will be an exciting year with IGS-NA. If you are interested in helping to develop the programming, services and leadership offered by IGS-NA, I encourage you to consider standing for office.

To learn more, visit: www.igs-na.org.

Seats open for the upcoming election are:

1 Seat – President Elect, Each new President-Elect shall serve one 2-year-term of office in that capacity following which he/she shall serve one 2-year-term as President, followed by one 2-year-term as Past-President. As President-Elect, the successful candidate will be responsible for assisting the President and performing assignments directed by the President and/or Board.

1 Seat – Treasurer, The Treasurer will serve a 2-year-term. The Treasurer is responsible for managing the finances of IGS-NA.

3 Seats – Vice-President, Vice-Presidents will serve a 4 year term. Vice-Presidents are responsible for representing Members of IGS-NA and performing assignments directed by the President and/or Board.

Important Dates & Deadlines

04–18 November 2016 – Call for Nominations

01 December 2016 – Nominations Committee sends a slate of nominees to the Board for approval.

By the end of December 2016 – The Ballot is developed and made ready for distribution to the membership.

01–27 January 2017 – Voting period on Candidates to be Board Officers and Board members.

01 February 2017 – Successful Candidates notified and announcement made.

12–15 March 2017 – Newly elected Board Members will take office at the next General Assembly of the IGS-NA to be held in Orlando Florida during Geotechnical Frontiers 2017.

To nominate someone or yourself please email the requested information to info@igs-na.org. Please include your: name, title, company/institution/organization name, address, email address & phone number as well as a 150 word description about your involvement in the geosynthetics industry and your reason(s) for running for the seat.

To learn more, visit: www.igs-na.org.

Continuation of FS-KGEO, The German National Geosynthetics Event

The German Geotechnical Society (DGGT) with their special sections soil mechanics, rockmechanics and tunnelling, engineering geology, environmental geotechnique and geosynthetics decided to have a combined conference of all these special sections. This will be held in Würzburg (Germany) from 6 – 8 September 2017. So the 15th FS-KGEO under the leadership of Martin Ziegler (chair of the special section “Geosynthetics” and the German IGS Chapter) will no longer be a standalone conference in Munich but will be incorporated in this combined event with the great advantage of interdisciplinary exchange and an even more valuable technical exhibition. The call-for-paper is open until the end of the year.

Further details can be found at the webpage: <http://fachsektionstage-geotechnik.com/>

*Reported by
Gerhard Bräu, German IGS Chapter*

List of IGS Chapters

Country	Name of IGS Chapter Year of Foundation	IGS Chapter President	webpage further email address
Argentina	Argentinean Chapter 2009	Dr. Marcos Montoro marcos_montoro@yahoo.com.ar	www.igsargentina.com.ar/ secretario@igsargentina.com.ar
Australia and New Zealand	Australasian Chapter 2002	Graham Fairhead gfairhead@fabtech.com.au	Amir@globalsynthetics.com
Austria	Austrian Chapter 2016	Prof. Heinz Brandl	g.mannsbart@tencate.com
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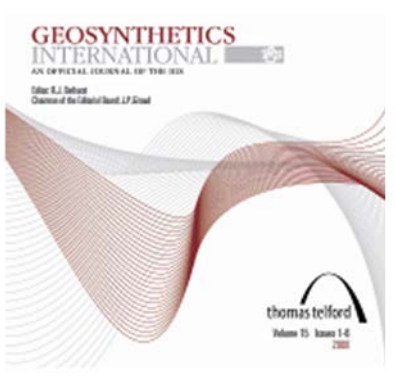
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Geosynthetics International



Geosynthetics International is an official journal of the IGS and has established itself as a premier peer-reviewed journal on geosynthetics. The Journal publishes technical papers, technical notes, discussions, and book reviews on all topics relating to geosynthetic materials (including natural fiber products), research, behaviour, performance analysis, testing, design, construction methods, case histories, and field experience.

Geosynthetics International is only published electronically starting Volume 10 (2003) by ICE Publishing (Thomas Telford) and is free to IGS Members. All others, e.g., corporations, companies, and university libraries, can subscribe at a rate of £590 / US\$ 960.

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Content of Volume: 23, Issue: 5 (October 2016)

[Influence of fibers on the shear strength and dewatering performance of geotextile tubes](#), M. M. Khachan, S. K. Bhatia

[Soil-geosynthetic interaction in pullout and inclined-plane shear for two geosynthetics exhumed after installation damage](#), M. Pinho-Lopes, A. M. Paula, M. L. Lopes

[Field test of a geogrid-reinforced and floating pile-supported embankment](#), W. Z. Cao, J. J. Zheng, J. Zhang, R. J. Zhang

[Coupled discrete and finite-element modelling of geosynthetic tubes filled with granular material](#), J. Górnjak, P. Villard, P. Delmas

[Diffusion of phenolic compounds through two high-density polyethylene geomembranes after 17 years under different exposure conditions](#), N. Touze-Foltz, M. Mendes, F. Farcas, L. Mazéas

Please find the download of the articles at:

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For the IGS members to have FREE access to the papers they MUST log in through the IGS website.

Content of Volume: 23, Issue: 6 (December 2016)

[Best Geosynthetics International Paper for 2015](#), R.J. Bathurst

[Reduction of lateral pressures on retaining walls using geofoam inclusion](#), S. S. AbdelSalam, S. A. Azzam

[Polychlorinated biphenyl diffusion through HDPE geomembrane](#), R. K. Rowe, D. D. Jones, A. Rutter

[The influence of tensile strain on the pore size and flow capability of needle-punched nonwoven geotextiles](#), C. S. Wu, Y. S. Hong

[Numerical parametric study on behavior of bearing reinforcement earth walls with different backfill material properties](#), K. Sukmak, J. Han, P. Sukmak, S. Horpibulsuk

[Diffusion of bisphenol-A \(BPA\) through an HDPE geomembrane](#), P. T. Saheli, R. K. Rowe, A. Rutter

[Hydraulic deterioration of geosynthetic filter drainage system in tunnels – its impact on structural performance of](#)

[tunnel linings](#), C. Yoo

[Note of appreciation to paper reviewers](#)

Please find the download of the articles at:

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Geotextiles & Geomembranes



Geotextiles and Geomembranes is dedicated to the mission of the IGS, which is to promote the scientific and engineering development of geotextiles, geomembranes, related products, and associated technologies.

The Journal publishes technical papers, technical notes, discussions, and book reviews on all topics relating to geosynthetics, research, behaviour, performance analysis, testing, design, construction methods, case histories, and field experience.

Papers should be submitted electronically as a Microsoft Word or pdf file to: kerry@civil.queensu.ca

Please ensure the text is double spaced, there is an abstract with keywords included, and tables and figures are at the end following the text. Please check the Journal's instructions for authors for additional information regarding submissions. The Journal strives to provide the authors with quick, constructive reviews, and we appreciate the author's hard work in addressing these comments and quick return of revised papers.

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A hardcopy of *Geotextiles and Geomembranes* is available at a reduced subscription rate to individual and Corporate Members of the IGS. Individual IGS Members may subscribe at an 84% discount: US\$170 for six issues. IGS Corporate Members may subscribe at a 64% discount: US\$396 for six issues. Please indicate that you are an IGS Member when requesting the special price.

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For direct connection to the home page of the journal with the possibility to download PDF-files of the full papers (IGS members and abonnents only) please follow the link at the end of the following content listing.

Content of Volume 44, issue 5 (October 2016) Developments in Geosynthetics for Environmental Protection

Editorial

[Foreword to special issue on developments in geosynthetics for environmental protection](#), Abdelmalek Bouazza, Nathalie Touze-Foltz

Regular Articles

[A review of the performance of geosynthetics for environmental protection](#), N. Touze-Foltz, H. Bannour, C. Barral, G. Stoltz

[Geosynthetics in Antarctica: Performance of a composite barrier system to contain hydrocarbon-contaminated soil after three years in the field](#), R.S. McWatters, R.K. Rowe, D. Wilkins, T. Spedding, D. Jones, L. Wise, J. Mets, D. Terry, G. Hince, W.P. Gates, V. Di Battista, M. Shoab, A. Bouazza, I. Snape

[Field and laboratory observations of down-slope bentonite migration in exposed composite liners](#), R. Kerry Rowe, Richard W.I. Brachman, W. Andy Take, Amy Rentz, Lauren E. Ashe

[Limiting membrane and diffusion behavior of a geosynthetic clay liner](#), Charles D. Shackelford, Amara Meier, Kristin Sample-Lord

[Membrane efficiency and diffusive tortuosity of a dense prehydrated geosynthetic clay liner](#), Michael A. Malusis, Akmal S. Daniyarov

[Sorption and diffusion of bisphenol-A \(BPA\) through a geosynthetic clay liner \(GCL\)](#), Pooneh T. Saheli, R. Kerry Rowe

[Hydraulic conductivity and swelling ability of a polymer modified bentonite subjected to wet-dry cycles in seawater](#), Michela De Camillis, Gemmina Di Emidio, Adam Bezuijen, Ramiro Daniel Verástegui-Flores

[Potential hydraulic barrier performance of cyclic organic carbonate modified bentonite complexes against hypersalinity](#), A. Fehervari, W.P. Gates, A.F. Patti, T.W. Turney, A. Bouazza, R.K. Rowe

[Predicting self-healing ratio of GCL with a damage hole](#), Jin-Chun Chai, Kartika Sari, Shui-long Shen, Yuanqiang Cai

[Investigations of geomembrane integrity within a 25-year old landfill capping](#), Eugene M. Gallagher, David M. Tonks, John Shevelan, Andrew R. Belton, Ria E. Blackmore

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[Geotextiles and geomembranes: Best papers in 2015](#), R. Kerry Rowe

[Numerical modeling of the nonlinear mechanical behavior of multilayer geosynthetic system for piggyback landfill expansions](#), Bekoin Francis Guillaume Tano, Daniel Dias, Gary John Fowmes, Franck Olivier, Guillaume Stoltz, Nathalie Touze-Foltz

[Lateral bearing capacity and failure mode of geosynthetic-reinforced soil barriers subject to lateral loadings](#), Kuo-Hsin Yang, Jonathan T.H. Wu, Rong-Her Chen, Yi-Shou Chen

[Deterministic and probabilistic prediction of facing deformations of geosynthetic-reinforced MSE walls using a response surface approach](#), Bo-Hung Lin, Yan Yu, Richard J. Bathurst, Chia-Nan Liu

[Geotextile biofiltration of primary treated municipal wastewater under simulated arctic summer conditions](#), Evan Bridson-Pateman, Rob Jamieson, Craig Lake

[Evaluating reinforcement loading within surcharged segmental block reinforced soil walls using a limit state framework](#), Yonggui Xie, Ben Leshchinsky, Shangchuan Yang

[Performance of geosynthetic reinforced/stabilized paved roads built over soft soil under cyclic plate loads](#), Murad Abu-Farsakh, Shadi Hanandeh, Louay Mohammad, Qiming Chen

[Particle size effects on coarse soil-geogrid interface response in cyclic and post-cyclic direct shear tests](#), J. Wang, F.Y. Liu, P. Wang, Y.Q. Cai

[Experimental study on the behaviour of geogrid-reinforced slopes with respect to aggregate size](#), Gh. Tavakoli Mehrjardi, A. Ghanbari, H. Mehdizadeh

[Investigation on the interfacial mechanical behavior of wave-shaped fiber reinforced soil by pullout test](#), Chao-Sheng Tang, Jian Li, De-Yin Wang, Bin Shi

[Discussion of "Centrifuge evaluation of the time-dependent behavior of geotextile-reinforced soil walls" by C.M.L. Costa, J.G. Zornberg, B.S. Bueno, Y.D.J. Costa](#), Huabei Liu, Chunhai Wang

[Reply from authors Costa, C. M. L., Zornberg, J. G., Y. D. J. Costa. "Centrifuge evaluation of the time-dependent behavior of geotextile-reinforced soil walls"](#), Carina Maia Lins Costa, Jorge Gabriel Zornberg, Yuri Daniel Jatobá Costa

[Discussion of Xiao C. et al., "Experimental study on performance of geosynthetic-reinforced soil model walls on rigid foundations subjected to static footing loading"](#), Jonathan T.H. Wu, Michael T. Adams, Jennifer E. Nicks

[Experimental study on performance of geosynthetics reinforced soil model walls on rigid foundations subjected to static footing loading: Response to discussion by J. T. H. Wu, M. T. Adams, and J. E. Nicks](#), C. Xiao, J. Han, Z. Zhang

[Discussion of "Feasibility study of copper slag as a structural fill in reinforced soil structures" by P.S. Prasad and G.V. Ramana](#), Dongsheng Xu

[Reply for Dr. Xu's discussion of "Feasibility study of copper slag as a structural fill in reinforced soil structures" by P.S. Prasad and G.V. Ramana](#), P.S. Prasad, G.V. Ramana

Content of Volume 45, issue 1 (February 2017)

[The effect of submersion in the ochre formation in geotextile filters](#), L.G.C.S. Correia, M. Ehrlich, M.B. Mendonca

[Laboratory tests to evaluate effectiveness of wicking geotextile in soil moisture reduction](#), Fei Wang, Jie Han, Xiong Zhang, Jun Guo

[Influence of geotextile encasement on the behaviour of stone columns: Laboratory study](#), Marina Miranda, Almudena Da Costa, Jorge Castro, César Sagaseta

[Water retention curve of GCLs using a modified sample holder in a chilled-mirror dew-point device](#), Yi Lu, Hossam Abuel-Naga, Abdelmalek Bouazza

[Bearing capacity of strip foundations in horizontal-vertical reinforced soils](#), Juan Hou, Meng-xi Zhang, Zhi-heng Dai, Jia-zheng Li, Feng-fan Zeng

[Evaluation of tensile load-strain characteristics of geogrids through in-soil tensile tests](#), S. Balakrishnan, B.V.S. Viswanadham

[Application of innovative meandrically arranged geotextiles for the protection of drainage ditches in the clay ground](#), Jan Broda, Andrzej Gawlowski, Ryszard Laszczak, Andrzej Mitka, Stanisława Przybyło, Joanna Grzybowska-Pietras, Monika Rom

[Influence of particle shape on the shear strength and dilation of sand-woven geotextile interfaces](#), Aliyeh Afzali-Nejad, Ali Lashkari, Piltan Tabatabaie Shourijeh

[Effects of facing, reinforcement stiffness, toe resistance, and height on reinforced walls](#), S.H. Mirmoradi, M. Ehrlich

[Fibre-reinforced cemented soils compressive and tensile strength assessment as a function of filament length](#), Lucas Festugato, Estéfano Menger, Fernanda Benezra, Eduardo André Kipper, Nilo Cesar Consoli

Please find the download of the articles at:

<http://www.sciencedirect.com/science/journal/02661144>

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Corporate Membership

Report on Corporate Committee Meeting 24 September 2016

Corporate Committee

The Corporate Committee (CC) would like to take this opportunity to update you on its recent activities. This will be a regular feature from now on. The composition of the current Committee membership is as follows:

Committee Chair: Kent von Maubeuge – kvmaubeuge@naue.com

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As a general point, please do not hesitate to contact the committee chair (kvmaubeuge@naue.com) or the IGS secretary Diana Davis (IGSsec@geosyntheticssociety.org) at any time with any queries/questions on Corporate Member issues. The CC recently held a committee meeting in September in Ljubljana, just prior to EuroGeo6, and the following provides a brief report on the issues discussed.

Membership

Currently we have 190 Corporate Members which marks an increase from the 167 reported in 2015. This growth strongly supports the overall strategic plan of the IGS to grow its individual membership.

Please note that whilst the vast majority of members pay subscriptions on time we always have a few who are late. We are very active in communicating with members who are late payers and, whilst we would rather not take action, to be fair to those who always pay on time, we have been forced to rescind membership in the past for continued late payment.

Following a suggestion from the Corporate Committee, the IGS Council has voted to approve a plan to introduce a joining fee for new Corporate Members equivalent to two years subscriptions. The first payment of annual subscription would then be in the third year of membership. This joining fee is intended to encourage members who want to participate in the society long term and not just join for a year in order to qualify for conference and exhibition discounts etc.

Conferences & Exhibitions

Committee is discussing a range of initiatives aimed at improving the Corporate Member experience with IGS Conferences and Exhibitions.

Foremost of these will be clear guidelines to organisers of regional and international conferences ensuring ease of access for 'exhibition only' visitors for a nominal fee (eg to cover catering). This should facilitate member exhibitors being able to issue invitations to customers and partners and hopefully generate a wider audience for our exhibitions and industry.

Marketing & Communication

Corporate Members will be reminded of the rules for use and misuse of IGS logos. The committee definitely want to encourage the correct use of these logos whenever possible but must also ensure that they are used correctly and by the appropriate bodies in order not to devalue their impact.

Corporate Members will be given the opportunity to sponsor 'Educate the Educator' programs currently run by the IGS Education Committee

The list of current Corporate Members appears on the new website although it was noted that not all members have provided a logo for insertion. Members are strongly encouraged to do this otherwise this space will be left blank.

A proposal is under discussion to establish a Corporate Members Newsletter.

Other Business

A Corporate Member case history contest will be established. This will utilise the existing system of submission of Case Histories to IGS News. The details will be finalized and communicated.

Discussions are underway with a view to strengthening liaison links to industry bodies (eg manufacturer's associations). Further information will be provided should this proceed.

Next Meeting

The next meeting of the Corporate Committee is planned for 21st November 2016 via teleconference.

We hope that you found this update useful and are reminded that if you have any queries please do not hesitate to contact the CC at any time.

Reported by

Kent von Maubeuge, Chairman of the IGS Corporate Members Committee

IGS Corporate Members Award at EuroGeo 6 Ljubljana, Slovenia, 25 - 28 September 2016

The IGS owes a considerable amount of its stability and success to its strong corporate membership. We are proud that more than 190 companies are part of our society. Many of these companies have sustained their corporate member level of support without interruption for decades. This year it is our honor to recognize on behalf of the IGS the following corporate members which have reached exceptional milestones of support.

Company	20 Year	30 Year	Country
AGRU KUNSTSTOFFTECHNIK	X		Austria
BONAR		X	Belgium
COLAS SA	X		France
DUPONT DE NEMOURS		X	Luxembourg
GEOFABRICS LTD.	X		UK
GEOFELT GmbH	X		Austria
SWISS ASSOC. FOR GEOSYNTHETICS		X	Switzerland
TELE TEXTILES	X		Estonia
TENCATE GEOSYNTHETICS AUSTRIA		X	Austria
ASAHI GEOTECHNILOGIES		X	Japan
GEOSYNTHETIC MATERIAL ASSOC.		X	USA
JAPAN SPUNBOND TORAY		X	Japan
KAJIMA CORPORATION		X	Japan
OKASAN LIVIC		X	Japan
PRESTO GEOSYSTEMS	X		USA
TOKYU CONSTRUCTION		X	Japan

Finally, as a professional society we must keep in mind that we are, without question, stronger together. Thank you to all of our corporate members. With your continuing support and the sharing of ideas and activities with your colleagues and competitors, you make our field and the IGS better each day.

Reported by

Kent von Maubeuge, Chairman of the IGS Corporate Members Committee

Case studies – use the chance!

All corporate members are invited to announce a case study at any time. For each issue 3 to 4 case studies are planned to be placed in (up to 1 page with pictures). Usually if there are more announcements we will place them on a list and will use them on a “first come, first serve” basis. For this issue we have no “Profiles” therefore we expand the case studies section. A corporate member may have a second case study published if the list is finished with corporate members not been considered yet. As we know that some of our corporate members are very hard-working on such a type of publication, please be aware that the only possibility to prevent a publication series by one company is to send in your own case study!

With a distribution of more than 3000 samples/downloads of IGS News this is a good promotion of the geosynthetic technique and your company. We would be happy if this chance is used frequently.

Reported by

Gerhard Bräu, IGS News Editor

Geocells for a Culture Square near a Channel



Project



The project is done for a Culture Square near the channel. With the dual goal of repairing and beautify-ing the area. The project site is a highly erodible regional soil type designated by layers of clay and deposits of silt laid down over time from glacial movements.

Construction period



The project lasts for 3 months, including broaden the channel and installation of Ecoweb Geocell. (Not only geocells)

Ecoweb Geocell



Project requires supplying Ecoweb Geocell 200-712 (8 in). Each section is 5 cells x 11 cells, 13.93 m² (150 sq.ft.). Totally 860 pcs, approximately 12,000 m² (129,000 sq.ft.) Loaded onto 20 pallets, each pallet is (1.1m x 1.1m) (3.6ft x 3.6ft) in ONE 20' Container.

Vegetation



The owners were pleased for the cost-saving design, the quick installation and vegetation. The Ecoweb Geocells seemed to disappear, it brings a natural looking.

Further information

For more information visit www.geo-ecoweb.com or write to info@geo-ecoweb.com

Geotextile formwork used as canal lining system

HUESKER

Project

A project to refurbish a 1 km section of the Alzkanal, which runs in Germany parallel to the Alz close to the Austrian border, necessitated the placement of a new sealing layer above the existing canal lining. This involved the installation of approx. 37,000 m² of Incomat® Standard geosynthetic concrete mattress within a little bit more than one month. As it was not feasible to lower the water level along the whole section, the refurbishment works had to be performed partly under water.

Background

The approx. 66 km long Alzkanal in the German Federal State of Bavaria was started operation in the 1923. The canal, which is fed by the river Alz, is used solely to supply the chemical company Wacker with cooling water and hydroelectricity. The Alzkanal hydropower facility with a total output is just short of 30 MW. The resulting annual electricity production of some 266 GWh suffices to supply around 90,000 four-person households. After 90 years of service, the canal's concrete lining exhibited clear signs of ageing. Especially the concrete microstructure was heavily damaged. In some places, the cracks and spalling near the construction joints had been exacerbated by the growth of vegetation.

Solution

The contract for the refurbishment works using Incomat® Standard was awarded to Hagn Umwelttechnik GmbH from Sulzemoos, based on an innovative, proven and fast installation method. Incomat® Standard comprises two synthetic woven layers connected by a regular arrangement of binders. The void between the two layers is filled in-situ with

fluid concrete. With the woven layers acting as lost formwork, the system allows the rapid construction of robust concrete revetments, even on steeply sloping surfaces, in both dry and underwater conditions. The variable-length spacers can be used to determine the thickness of the revetment. No conventional formwork at all is needed. Individual Incomat® sheets can be customized to the exact geometry of the canal.

The specification of Incomat® Standard for the refurbishment of areas of the Alzkanal particularly in conjunction with the innovative installation method adopted by Hagn Umwelttechnik GmbH – delivered a raft of technical and financial benefits. In terms of reliable installation on sloping underwater surfaces, Incomat® Standard is virtually unmatched by any other lining system. The flexible woven formwork was tough enough to withstand the loads imposed by the site operations and adapted itself perfectly to the geometry of the base. Once in place, the lining needed no additional covering (e.g. protective layer or ballast). The adopted installation procedure not only ensured the daily incorporation of up to 120 m canal base per day. The successful completion of this challenging and intriguing project was not least due to the close and productive teamwork, both in-house at HUESKER and externally with the client, designers, contractor and suppliers.



Figure 1: Filling of canal bottom by patented installation procedure



Figure 2: Filling of side slopes, after the bottom section has been filled

Further information

For more information visit www.HUESKER.com

The construction of the flood channel in Rees in the Lower Rhine region



BUILDING PROJECT

The construction of the flood channel in Rees in the Lower Rhine region is said to be a pioneering building project in the field of flood control. The German Water and Shipping administration provided altogether 50 million Euros for the construction. The state of North Rhine-Westphalia participated with further 5 million Euros in this building project which has been honored by the PIANC (The World Association for Waterborne Transport Infrastructure) with the Working-with-Nature Award.

The flood channel functions as a bypass for the Rhine, relieves the main stream of the Rhine in case of flood events and contributes to a reduction of the flow velocity. During the construction extensive masses of topsoil were shifted and finally secured by diverse measures. A high demand for erosion control material occurred, which has to fulfil several functions depending on position and construction in the flood channel.

In all respects a successful balancing of the needs of inland waterway transport with nature conservation was focused.

PROCEDURE

Since the materials in water engineering are exposed to most diverse conditions, these were selected according to each region of the flood channel. The Internationale Geotextil GmbH supported the building project with products specially designed for water engineering, which were used both in water and at the banks.

While iGGmat Vmax P550 erosion control blankets were laid above the mean water level, iGGmat Vmax C350 were used in the upper slope areas. These altogether almost 84.000 square meter of Vmax erosion control blankets are particularly suitable for the 3 km long and 120-180 m wide flood channel because of their three-dimensionality and

their durability. After their installation the blankets were planted either with reed plants or hydroseeding. The blankets favor the long-term stability of plants, while protecting the planted soil surface against the erosion forces of the Rhine. Areas exposed to particularly high flow rates were fitted with 33.500 square meter of iGGgab river mattresses, which were filled with gravel and silted up with topsoil-substrate. With the help of reed plants laid on the river mattresses, this area could be greened as well. A few months after the inauguration, one can proudly say that the construction period of 5 years led to success. Flood situations could be mitigated as intended and the fairway conditions could be stabilized. Also concerning the nature and landscape protection the project is regarded as exemplary.

DELIVERED MATERIAL

70.000 m² iGGmat Vmax P550

14.000 m² iGGmat Vmax C350

33.500 m² iGGgab river mattresses

PRINCIPAL

Wasserstraßen- und Schifffahrtsverwaltung des Bundes, Wasser- und Schifffahrtsamt Duisburg-Rhein



Aerial view of the flood channel



iGGmat Vmax C350 with wooden fixing pin



Planting into a iGGmat Vmax P550



iGGmat Vmax C350 with vegetation

Further information

For more information visit www.igg.de or write to sales@igg.de

Kaytech has a Stabilising Effect at Groblersdal Mall



By providing a highly effective and economical solution, Kaytech has recently created a major cost saving for a property developer. The site was the newly proposed Groblersdal Mall, the brainchild of Twin City Development, who realised how much the creation of a large retail space would benefit the Sekhukhune District of Limpopo.

The small farming town of Groblersdal is South Africa's second largest irrigation settlement where the nearby Loskop Dam was used to create a manmade floodplain for the cultivation of numerous crops including grapes. The problem encountered by DG Consulting Engineers was inadequate compaction being achieved in the construction of two loading platforms for the mall. The cause was not only low bearing soils with high clay content, but the influence of a nearby irrigation channel resulting in saturation of the soil.

When contacted by the engineer, Kaytech's Danie Herbst specified the renowned bidim geotextile and the revolutionary TriAx geogrid, the combination of which would provide separation and subgrade stabilisation for the loading platform. Bidim is a continuous filament, nonwoven, needlepunched geotextile manufactured from 100% recycled polyester. It is the needlepunching process that imparts several advantages including appreciable thickness, high porosity and importantly, a high drainage capacity both transverse and normal to the plane. Manufactured by Kaytech since 1978, bidim has become the leading geotextile throughout Africa.

Compared to bi-axial geogrids, the triangular geometry of TriAx provides near uniform radial stiffness through 360° making it a truly multi-directional product with near isotropic properties. Manufactured from rigid polypropylene, the unique characteristics of TriAx allow for reduced aggregate layer thickness thereby not only reducing the quantity of aggregate required, but also the volume of material to be excavated. When combined with a suitable aggregate, TriAx produces a mechanically stabilised layer of unsurpassed performance.

In order to assist with a design proposal, Kaytech consulted with Tensar, the manufacturer of TriAx geogrids. According to Danie Herbst, "This gave the engineer the comfort of testing the performance of the products in trial areas until the necessary compaction was generated". The final solution specified bidim A2 and TriAx TX 160 with a fill layer of between 600mm and one metre, for the first platform. To date, Jodan Construction has installed 5 400m² each of bidim A2 and TriAx TX 160 with excellent compaction being achieved.

Kaytech has pioneered the use of a selected post-consumer PET recycle stream since the mid 1980's. The use of recycle, when processed with an expert process, similar to that employed by Kaytech, offers a product that not only meets, but in some respects outperforms geotextiles produced from virgin textile grade polymer. This is primarily due to the type of polymer derived from PET beverage bottles showing specific characteristics that are better suited to geotextile applications. The equivalent of over 15 000 recycled PET beverage bottles were used in the 5 400m² of bidim that was used in the Groblersdal Mall project.

It is envisaged that by completion of the mall, many more thousands of square metres of these high performance products will have been supplied. The alternative solution, involving the complete removal of dumprock for the construction of the platforms, would have resulted in exorbitant costs.

Once the 35 000m² Groblersdal Mall is in operation, increasing property values and generating income and development, the small town of Groblersdal is certain to thrive.



The waterlogged soil was not conducive to heavy plant



bidim separates the stabilising TriAx from the in situ and the geotextiles were overlaid with 600mm topsoil



The successfully stabilised trial section



The entire base of the site was stabilised for plant and construction using TriAx and bidim

Further information

For more information visit www.kaytech.co.za

Securing Hazardous Waste in Uganda



The Nyamasoga Landfill in Uganda is a critically important hazardous waste facility in the oil-rich Hoima District. The 44 hectare site is in close proximity to drilling pads and a proposed refinery. The site is also something of a trailblazer. In the absence of any governing hazardous waste barrier standards in the country for such a site, the facility owner chose a fully modernized design with geosynthetics from NAUE to environmental security.

EnviroServ Uganda (ESU) operates the facility, which has been designed to handle drilling fluids, mud cuttings, and other industrial and processing wastes not suitable to municipal solid waste burial.

Jones & Wagener was retained to design the hazardous waste containment strategy, including waste cells, leachate management systems, stormwater management, access roads, and more. J&W's modular solution called for Carbofol® geomembranes, Bentofix® geosynthetic clay liners (GCLs), and Secugrid® geogrids to solve the site's challenging parameters.

The local soils were characterized by sandy clays with pockets of gravel interspersed. Weathered rock was present between 2.5 and 4.5 m below the surface. This limited the maximum cell depth to 5 m, to minimize rock excavation and prevent groundwater perching.

Additionally, the area was hilly, including being extremely steep at some edges. The design engineers created a C-shaped cell plan on the north side of the property, with the center points of the C having the lowest elevation. This is where the primary stormwater management cells were set, creating a very efficient design.

With only a highway running along the southern edge of the plot, access roads were constructed along all other side of the atypical, wedged-shaped location.

The modular layout included four cells, each of which was further halved by a 3m berm from the bottom of the cell. Security berms with 4m crests were built around the cells, both for slope stability and stormwater management. The external sides of the slopes were designed at 2:1 (horizontal: vertical) and the internal sides at 3:1.

In the absence of guidance within Uganda's environmental codes, the project turned to South African lined facility regulations and design specifications common to oil operations in the region.

This produced designs for waste containment and stormwater management following South Africa's Class A approach, which is a double liner system (composite geomembrane/GCL approach with a leak detection system separating the primary and secondary containment geosynthetic).

Due to a water table that perched at 5.2m, seepage was detected into the system during excavation. Thus, a geocomposite drainage layer was included in the design. Natural filter materials were prohibitively expensive to source for the site.

The absence of easily sourced filter material was only one of the sourcing challenges presented by the location. A bentonite-enhanced soil layer was expected, for example; but, bulk sourcing such a clay layer was not possible in

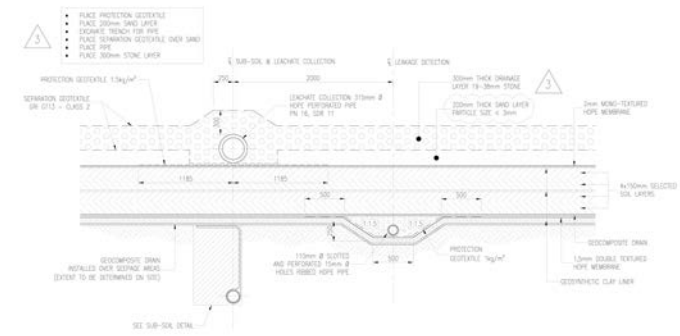
the area. Thus, the design was amended to include two GCL layers instead of just one.

This innovative design solution gave the site greater security, better economics, and a quicker, safer installation. It also underscored how geosynthetics provide exceptional performance and affordability for emerging infrastructures. Further enhancing the site’s security was the specification of textured HDPE geomembranes for optimal frictional performance within the cell topography. This included a mix of textured/textured geomembranes and textured/smooth geomembranes.

NAUE Geosynthetics on the site now include 59,400 m² of Bentofix® NSP 4900 GRI GCL3, 21,420m² of CARBOFOL® HDPE 406 2.0 MF/s, 765 m² of CARBOFOL® HDPE 406 1.5 MF/MF, and 1,425m² of Secugrid® 200/40 R6 geogrids.



Placement of aggregate leachate collection system over the double-lined geosynthetic base liner system



Cross-section of the base liner system for hazardous waste containment

Further information

For more information visit www.naue.com or www.bentofix.com

Klokova Tunnel, Aitoloakarnania, Ionia Highway, Greece



Klokova mountain is located in Aitoloakarnania, Western Greece. Klokova’s tunnel is a twin tunnel, 2950 meters long and is part of the Ionian Highway under construction (concession project), a section of European Route E55. Tunnel boring started in May 2015 and was completed within fourteen months in June 2016. It is among the ten largest tunnels of Greece and the largest one of the Ionian Highway.

GEOTECHNICAL CONDITIONS

The rock formations prevailing were basically Cretaceous and Eocene limestones presenting an average compressive strength of 45 MPa. Due to their intense karstification, localized and perched aquifers were present, exhibiting localized water presence of short duration, mostly during rainfalls.

DRAINAGE – SEALING FUNCTIONS

According to the design a peripheral drainage and a complete waterproofing system consisting of a non-woven of 500 gr/m² geotextile and a 2mm sealing geomembrane were proposed. The temporary retaining measures included the use of shotcrete reinforced by fibers, rock anchors and steel ribs. For the final lining, drainage and protective geotextile, a geomembrane and cast in place reinforced concrete were used.



Figure 1 Klokova Tunnel under construction

GEOTEXTILE EMPLOYED

A non-woven needle-punched polypropylene geotextile of Thrace Nonwovens & Geosynthetics type 500CNW was provided on site, to implement the necessary functions of drainage and protection to the sealing geomembrane (Figure 2). More specifically, prior to the placement of the geomembrane, the shotcreted surface of the tunnel was coated by a non-woven geotextile acting as drainage and as protection preventing any possible geomembrane harm or tear due to direct contact with the inevitable rough surface created by the shotcrete. In total 60,000 m² of non-woven geotextile was applied in this project.



Figure 2a Tunnel lining by a non-woven drainage geotextile



Figure 2b Coverage by waterproofing geomembrane

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SAGEOS - CTT GROUP	Canada	eblond@gcttg.com	www.sageos.com
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SHENZHEN SHENG YI ENVIRONMENTAL CO., LTD.	China (People's Republic)	shengyi@sz-shengyi.com	www.sz-shengyi.com
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The International Geosynthetics Society was formed with the following objectives:

- to collect, evaluate, and disseminate knowledge on all matters relevant to geotextiles, geomembranes, related products, and associated technologies;
- to improve communication and understanding regarding geotextiles, geomembranes, related products, and associated technologies, as well as their applications;
- to promote advancement of the state of the art of geotextiles, geomembranes, related products, and associated technologies; and
- to encourage, through its Members, the harmonization of test methods, and equipment and criteria for geotextiles, geomembranes, related products, and associated technologies.

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First, to contribute to the development of our profession.

By becoming an IGS Member you can:

- help support the aims of the IGS, especially the development of geotextiles, geomembranes, related products, and associated technologies;
- contribute to the advancement of the art and science of geotextiles, geomembranes, related products, and their applications;
- provide a forum for designers, manufacturers, and users, where new ideas can be exchanged and contacts improved; and
- become increasingly informed, involved, and influential in the field of geotextiles, geomembranes, related products, and associated technologies.

Second, to enjoy the benefits.

The following benefits are now available to all IGS Members:

- the online IGS Membership Directory, updated in real time;
- the newsletter, IGS News, published three times per year;
- free electronic issues of Geosynthetics International and Geotextiles & Geomembranes;
- 19 IGS Mini Lecture Series are available online;
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- discount rates on the purchase of any future documents published by the IGS and on the registration cost of all international, regional, or national conferences organized by or under IGS auspices;
- preferential treatment at conferences organized by or under the auspices of the IGS; and
- the possibility of being granted an IGS award.

Please check whether there is a local IGS Chapter in your country (list at page 23)!
 Otherwise please use the online form at <http://www.geosyntheticssociety.org>
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Membership of the Society is open to Individuals or Corporations "...engaged in, or associated with, the research, development, teaching, design, manufacture or use of geotextiles, geomembranes and related products or systems and their applications, or otherwise interested in such matters." The annual fee for membership is (US) \$45 for Individual Members and (US) \$1000 for Corporate Members. Individuals or Corporations who voluntarily contribute a minimum of (US) \$200 annually to the Society, in excess of

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Calendar of Events

Event	Location	Date	E-Mail, Website
IX Chilean Congress of Geotechnics	Valdivia, Chile	05 – 07 Dec 2016	directorio@sochige.cl www.congresosochige.cl
International Conference on Forensic Geotechnical Engineering	Bangalore, India	08 - 10 Dec 2016	anbu@civil.iisc.ernet.in
Advances in Laboratory Testing and Modelling of Soils and Shales	Villars-sur-Ollon, Switzerland	18 – 20 Jan 2017	valentina.favero@epfl.ch http://atmss.epfl.ch/
International Conference on New Challenges In Geotechnical Engineering, ICNCGE-2017	Lahore, Pakistan	23 Jan 2017	icncge2017@gmail.com http://www.pges-pak.org/home/icncge-2017
Rencontres Géosynthétiques 2017	Lille, France	07 – 09 Mar 2017	http://www.rencontresgeosynthetiques.org/
Geotechnical Frontiers	Orlando, Florida, USA	12 – 15 Mar 2017	bjconnett@ifai.com
GEOS PERÚ 2017 - IV National Conference on Geosynthetics	Lima, Peru	29 – 31 Mar 2017	presidencia@igsperu.org ; asistentepresidencia@igsperu.org
International Conference on Advances in structural and geotechnical engineering ICASGE17	Hurghada, Egypt	27 - 30 Mar 2017	marawan.shahin@f-eng.tanta.edu.eg http://www.icasge.com
9 th International Symposium on Geotechnical Aspects of Underground Construction in Soft Ground, IS - São Paulo 2017	São Paulo, Brazil	04 – 06 April 2017	atendimento@mci-group.com http://www.is-saopaulo.com/
3 rd Bolivian International Conference on Deep Foundations	Santa Cruz de la Sierra, Bolivia	27-29 April 2017	fabiana.viscarra@incotec.cc http://www.cfpbolivia.com/
Transportation Geotechnics and Geoecology – TGG 2017	St. Petersburg, Russia	17 - 19 May 2017	geotech@pgups.ru http://conf-geotech.wixsite/tgg-2017
EurAsia Geotextiles Symposium (EAGS)	Beijing, China (People's Republic)	07 – 08 Jun 2017	http://www.edana.org/education-events/conferences-and-symposia/event-detail/eurasia-geotextiles-symposium-2017
BCRRA 2017 - Tenth International Conference on the Bearing Capacity of Roads, Railways and Airfields.	Athens, Greece	28 - 30 Jun 2017	aloizos@central.ntua.gr http://www.bcrra2017.com/
GeoMEast 2017	Sharm El-Sheikh, Egypt	15 - 19 Jul 2017	hanyfarouk808@gmail.com http://www.geomeast2017.org/
PBD-III Vancouver 2017 - The 3 rd International Conference on Performance Based Design in Earthquake Geotechnical Engineering	Vancouver, British Columbia, Canada	16 - 19 Jul 2017	http://pbdiivancouver.com/
2 nd International Symposium on Coupled Phenomena in Environmental Geotechnics (CPEG2)	Leeds, W. Yorks, United Kingdom	06 - 08 Sep 2017	CPEG2@leeds.ac.uk http://tinyurl.com/cpeg2017
Interdisciplinary Geotechnical Forum (incorporating FS-KGEO 2017)	Würzburg, Germany	06 - 08 Sep 2017	http://fachsektionstage-geotechnik.com/
ICSMGE 2017 - 19 th International Conference on Soil Mechanics and Geotechnical Engineering	Seoul, Korea	17 - 21 Sep 2017	secretariat@icsmge2017.org http://www.icsmge2017.org
GeoAfrica 2017 – 3rd African Regional Conference on Geosynthetics	Marrakech, Morocco	08 – 11 Oct 2017	contact@geoafrica2017.com http://geoafrica2017.com/
4 th International Symposium on Cone Penetration Testing (CPT'18)	Delft, The Netherlands	21 – 22 Jun 2018	info@cpt18.org http://www.cpt18.org/
The 7 th International Conference on Unsaturated Soils (UNSAT2018)	Hong Kong, China	03 - 05 Aug 2018	unsat2018@ust.hk http://www.unsat2018.org
11th International Conference on Geosynthetics (11ICG)	Seoul South Korea	16 - 20 Sep 2018	csyoo@skku.edu
7 ICEGE 2019 - International Conference on Earthquake Geotechnical Engineering	Rome, Italy	17 - 20 Jun 2019	agi@associazionegeotecnica.it
ISDCG 2019 – 7 th International Symposium on Deformation Characteristics of Geomaterials	Glasgow, UK	26 – 28 Jun 2019	
ECSMGE 2019 – XVII European Conference on Soil Mechanics and Geotechnical Engineering	Reykjavik, Iceland	01 - 06 Sep 2019	has@road.is http://www.ecsmge-2019.com

Event	Location	Date	E-Mail, Website
XVI Asian Regional Conference on Soil Mechanics and Geotechnical Engineering	Taipei, China	21 - 25 Oct 2019	
XVI Panamerican Conference on Soil Mechanics and Geotechnical Engineering	Cancun, Quintana Roo, Mexico	18 - 22 Nov 2019	support@panamerican2019mexico.com http://panamerican2019mexico.com

Note:

The conference announcements are shown with different graphics due to their priority for IGS:

IGS Conference

Conference organized under the auspices of the IGS

Conference under the auspices or with the support of an IGS Chapter