

IGS NEWS

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Geosynthetics '91

Fourth North American Regional Conference on Geosynthetics

by

Dr. R.J. Bathurst, Editor IGS News

The North American Geosynthetics Society held its biennial conference in Atlanta, Georgia 26-28 February 1991. The conference was organized by NAGS and the Industrial Fabrics Association International (IFAI) and was held under the auspices of the IGS. There were more than 1200 registrants at this fourth North American Regional Conference on Geosynthetics making it one of the largest conferences on geosynthetics ever held.

The three-day conference included the presentation of 69 papers in 9 sessions held on the Tuesday and Thursday. On Wednesday morning there was a meeting of the NAGS General Assembly followed by a panel discussion on failures in the afternoon and a NAGS banquet in the evening.

The conference proceedings contain 19 more papers than the proceedings of Geosynthetics'89. A well organized exhibition with 68 exhibitors was held concurrently with conference events.

Four sessions were devoted to applications using geosynthetics: Eight papers were presented in the session on Commercial/Industrial Applications; seven papers were delivered in the session on Transportation Applications; Six in "Other" Environmental Applications and seven in the session on Heavy Construction Applications. The continuing importance of the role of geosynthetics in containment applications was highlighted by sessions on: Waste Containment Interface Stability (6 papers); Geosynthetic Durability (6 of 7 papers on geomembranes) and; Waste Containment Case Histories (6 papers). The remaining sessions were devoted to: Technical Advancements/Testing and Research (12 papers) and; Technical Advances/Innovations (7 papers).

The special session devoted to lessons learned from failures involving geosynthetics was particularly well attended. Dr. J-P. Giroud presented a paper that highlighted

the "forensic" engineering that was used to determine the mechanisms at work in the case of a "shattered" geomembrane liner. The paper was an excellent example of the careful application of engineering principles to understand important thermo-mechanical behaviour in geomembrane installations and thereby avoid similar catastrophic failures in the future. A second paper delivered by W.J. Burwash and J.D. Frost outlined the history and subsequent failure of a 9m high geosynthetic reinforced-soil wall that failed 16 months after construction. An important lesson learned from this case history was the importance of quality control in the placement and compaction of the reinforced fill materials. The third case study was given in an enthusiastic and unique style by Dr. G. Richardson and concerned a 500,000m³ landslide that occurred at a municipal solid waste landfill. As Dr. Richardson pointed out in his presentation, the failure was largely due to a disregard for soil mechanics principles. While the site on which the landfill was placed was ideal from a soil permeability point of view, the designer failed to fully understand the consolidation behaviour of the soil and the need to allow the underlying soils to gain shear strength. Following the paper presentations a panel of speakers made up of B. Christopher, R.D. Holtz, H. Haxo, F. Taylor, C. Revitte and J-P. Giroud initiated a lively discussion and gave their reactions to the papers from the perspective of the owner, the manufacturer, and the designer. Collectively, the panel sessions and the experience of the well-qualified speakers emphasized a mature profession that is more than willing to share the experiences of its failures and to learn from them.

An exciting social program was offered at Geosynthetics'91 that culminated in the reception and banquet held on the second evening of the conference. Dr. R.K. Rowe, President of the IGS, gave the opening address and congratulated the North American Geosynthetics Society for organizing an excellent technical conference. Dr. Rowe

described the very important role of the IGS chapters as the link between researchers, manufacturers and designers throughout the world. Dr. Rowe reminded the audience of the important changes that are happening in Europe and how they will have a profound effect on the discipline and industry. He discussed the work on standardization currently underway in Europe and the important role that IGS committees are playing to monitor these activities and to provide information to IGS members in other countries. For example, the IGS Standards Committee has prepared an extensive world wide inventory of geotextile testing standards which can be purchased from the IGS Secretariat.

The greatest excitement during the banquet was generated during the Awards of Excellence program. Dr. R.M. Koerner, Past-President of NAGS, and R.G. Carroll Jr., the Awards of Excellence Chairman, described the history of the program which was begun by NAGS to recognize innovation, foster research, honour engineers and promote the industry. Mr. Carroll acknowledged the contributions of the great number of people involved in the judging of the conference papers and explained the procedures adopted to select the winning papers for the four award categories and the Grand Award. The award winners in each category are given below together with the title of their paper:

●Geosynthetics Applications Award: R. Bonaparte, J.E.Fluet, R. Johnson, V. Chouery-Curtis, *Application of Geosynthetics to the W.H. Zimmer Generating Station Project*

●Geogrid Case History Award: T.T. Heike, M.A. Patterson, J. Kerr, *Geogrid Reinforced Containment Dykes for Mountainside Oil Tank Farm in Seismic Zone*

●Geomembranes Award: S. Somasundaram, K. Khilnani, *Stability of High Refuse Slopes on Synthetic Lining Systems at the Bee Canyon Landfill*

●Geosynthetics Research: A. Rollin, J. Lafleur, M. LeFebvre, M. Marcotte, *Evaluation of Field Seams Quality by the Impact Test Procedure*

●Grand Award: B.L.J. Mylleville, R.K. Rowe, *On the Design of Reinforced Embankments on Soft Brittle Clays*

The winners were presented with a special plaque (artfully designed by R.G. Carroll Jr.) and then given the opportunity to announce a research institute of their choice to receive a cash contribution to support geosynthetics research. A total of \$65,000(U.S) was awarded in this manner due to the generous corporate sponsorship of Gundle Lining Systems Inc., Tensar Earth Technologies Inc., Polyfelt Inc. and Amoco Fabrics and Fibers Co. The commitment of these four companies to the promotion of geosynthetics internationally is also reflected by their corporate membership in the IGS.

As in past conferences the North American Geosynthetics Society held a meeting of the General Assembly. In his final address as President of NAGS, Dr. Koerner reviewed the accomplishments of the last two years and thanked the outgoing executive committee members for their work and the IFAI for its many efforts in support of NAGS. President-Elect Dr. R.D. Holtz introduced a motion to pass a new streamlined set of Bylaws that was passed by the members present.

A new NAGS executive was elected in a ballot session that was refreshingly short. The executive include:

Dr. John Beech	President-Elect
Mr. R.G. Carroll, Jr.	Vice-President
Mr. Robert Denis	Vice-President
Mr. Barry R. Christopher	Vice-President
Mr. John N. Paulson	Treasurer

Dr. R.M. Koerner handed the "damaged but still functional" gavel to Dr. R.D. Holtz who began his two year term as the new President of NAGS. Dr. Holtz reciprocated by presenting a plaque to Dr. Koerner, on behalf of NAGS, acknowledging his efforts over the last two years as President of NAGS.

A full report on the activities of the NAGS Chapter of the IGS will appear in the next issue of IGS News.

Finally, Dr. R.M. Koerner Past-President of NAGS, Dr. J. Beech, Organizing Committee Chairman, and L. Honnigford, Conference Coordinator, are to be congratulated on a job well done. The NAGS chapter of the IGS has demonstrated once again its commitment to technical excellence in geosynthetics and the sharing of the knowledge and experience of its members to others in North America and the international community. IGS members look forward to Geosynthetics'93 which is scheduled to be held in Canada.

How to get your copy of the Geosynthetics'91 Conference Proceedings

If you were not a registrant at Geosynthetic'91 and are interested in purchasing a copy of the two volume Proceedings, they can be ordered from IFAI for \$(U.S)55.00. Please contact IFAI at:

Industrial Fabrics Association International
345 Cedar St. Suit 800
St. Paul, MN U.S.A.
Tel: 1 (612) 222 2508
Fax: 1 (612) 222 8215

Please add the following postage cost (\$5.00 U.S.A. and Mexico, \$9.00 Canada, \$19.00 Central America, \$32.00 Europe & South America, \$38.00 all other countries).

Also recently available from IFAI are:

- A Design Primer: Geotextiles and Related Products, \$35.00
- 1991 Specifiers Guide, \$20.00

An order form and prices for 16 different geosynthetics publications are available from IFAI at the above address.

Letters to the Editor

In the last issue of IGS News (Vol 6 No.3 November 1990) a letter by Mr. Bob Denis was published in which he questioned the appropriateness of the title "International Geotextile Society" and proposed that the name of the so-

ciety be changed to the "International Geosynthetics Society". IGS News is pleased to print two responses to this challenging letter by the President of the IGS and the Past-President.

The President's Response

Bob Denis has raised a very good question in his letter published in the last issue of IGS News (see "International Geomonomer Society" p. 2, Vol. 6 No. 3). The question of why the "G" in the IGS stands for Geotextile and not Geosynthetics is a question many others have also asked and, like most good questions, it doesn't have a simple answer.

Firstly, let me say that it is a great shame that Bob's proposal could not be aired at the 3rd IGS General Assembly in the Hague. The IGS Council has already appointed a chairman of a committee which will find a better way of organizing the elections (which consumed so much time in the Hague) so that there will be time for other "business" at the 4th General Assembly in Singapore. Bob Denis and any other IGS members interested in joining this committee can do so by contacting the Chairman, Mr. P. Stevenson.

The main problem with the word "Geosynthetics" is the interpretation by many that it implies "obtained from

chemical synthesis". This would exclude many materials which the term geotextile includes. Bob's suggestion of a broader definition is interesting and worth exploring.

The IGS is a democratic society and any decision to change the name would have to be democratically reached at the next IGS General Assembly. Since a proposal has now been made, I will invite the By-laws Committee (under the Chairmanship of Mr. P. Stevenson) to investigate. Part of the investigation will involve seeking the opinion of all interested individuals. After review, the committee will make a recommendation to the IGS Council who, in turn, will make a recommendation to the membership of the IGS.

*Kerry Rowe
President of the IGS*

(Editors Note: This letter originally appeared in Geotechnical Fabrics Report November 1990.)

The Past-President's Response

Mr. Robert Denis has a remarkable talent: the original style of his letter attracts new attention to an old subject. As early as 1985, when the IGS Council agreed to propose to the General Assembly that the scope of the Society be extended to Geomembranes, a new name - IGGS - was considered. Then, with the growing success of the term geosynthetics, I formally put the question on the agenda of the Council meeting held in October 1988 in Tokyo. On one hand, there was pressure from North America to adopt the name geosynthetics, on the other hand, there was a request from two developing countries for keeping the society open to natural and synthetic products. This reminds us that the IGS is an international society and that opinions from a variety of countries should be heard. From this viewpoint, IGS News would be the appropriate forum for an international exchange of ideas on the name of the IGS.

In my opening address at the 4th International Conference on (sorry Mr. Denis) Geotextiles, Geomembranes and Related Products, I used the term geopolymer. This term clearly encompasses natural fibers as well as geosynthetics. However, I was told that the term geopolymer could not be acceptable because it excludes such materials as steel reinforcement used in applications similar to geotextile and geogrid applications. (And should the term geogrid be restricted to polymeric grids or should it be used also for steel grids?) A term like geoproduct would better encompass all the products we are discussing, but it may be too broad. However, the main merit of a term is not to be logical, not even to be acceptable by a majority, but to be actually used by a large number. This is clearly the case of

the term geosynthetics, which was coined by Joseph E. Fluet Jr. This term has the merit of encompassing most of the presently used products and systems, but more importantly, it is catchy and widely used.

The term geomembrane is another example of usage prevailing over logic. In 1977, when I proposed the term geotextile, I also proposed the term geomembrane as a generic term for all the bidimensional flexible materials (which is consistent with the definition of the term membrane) and I also proposed the term geosheet for what we call today the geomembranes. For some reason beyond anybody's control, the term geomembrane became used exclusively for these bidimensional flexible materials that have a low permeability and are used for fluid containment. Logic was ignored and usage prevailed. If the logical meaning of the term geomembrane had been accepted through use and if we had called our society the International Geomembrane Society, we would be in trouble today anyway as a result of the growing use of fibers, yarns, straps, and other quasi-unidimensional products; we would then consider the term geoflexible, and so on.

Selecting a name for a professional society is even more complex than selecting names for products because politics and vision are two parameters to be added to logic and usage. Politics is an important consideration: should we please the parts of the world where mostly synthetic products are used and upset some countries where the development of engineering uses of natural fibers is an important activity? And, in any given country, should we recognize those who are manufacturing synthetic products and not those who are developing the use of natural fibers? Vision

is essential to lead our discipline in the right direction: Should we close the door to those who develop engineering uses of vegetation, which is likely to make considerable progress in the next century with the development of biological sciences? Should we close the door to those who have revolutionized geotechnical engineering by developing the use of steel reinforcement and who feel now so close to us that they support the IGS? Should we deprive ourselves and society from the beneficial effects of synergism between geotechnical engineers and scientists specialized in polymers, metals, biological sciences, etc?

Changing the name of an existing society is even more complex than selecting a name for a new society because one more parameter must be considered: history. A good example is the recent protracted discussion on the name of the International Society for Soil Mechanics and Foundation Engineering (ISSMFE). Many new names have been proposed and discussed to replace this cumbersome name, including International Geotechnical Society, which was not considered appropriate because of the existence of another, already well-known, society with the acronym IGS! (At least we can be happy with the short and catchy acronym of our society.) More importantly, the original name of the ISSMFE was kept because of the weight of history. In our case, history may suggest that the well-known name of our society be kept as is, but it also reminds us that our discipline has developed around flexible products made from synthetic polymers, and may inspire us to change the name accordingly. Clearly, this is a complex matter and, at its meeting in 1988, the IGS Council decided that it was not appropriate to change the name of the soci-

ety at that time. At least everybody agrees that the acronym IGS is excellent and should stay. The meaning of the G could change, or the G could be used to represent a series of geoterms. After all, there are many societies with an acronym that does not exactly correspond to the name of the society. A famous example is ISO for International Organization for Standardisation: clearly there is no standard in this matter! The fact we are discussing this subject indicates the vitality of our discipline: only a growing, innovative discipline can have this type of problem. The term geotextile is certainly too restrictive to encompass our entire discipline, but it should be changed only after a thorough analysis of the direction in which our discipline is going and an international discussion. No one is better qualified to properly handle this problem than Dr. Kerry Rowe, the new President of the IGS, with his analytical mind and international experience, working in cooperation with the Council and the membership.

I would like to commend Bob Denis for his pertinent letter which has the merit of reopening an old but necessary debate, and I hope that this will lead to an international discussion and a good solution. I also thank Geotechnical Fabrics Report for inviting me to reply to this letter and I take this opportunity to recognize all the excellent contributions to our entire discipline by the Geotechnical Fabrics Report... in spite of its restrictive name.

*J-P. Giroud
Past-President of the IGS*

(Editors Note: This letter originally appeared in Geotechnical Fabrics Report November 1990.)

How the IGS selects the site for the International Conference

by

Peter E. Stevenson, IGS Treasurer

The excitement of the 4th International Conference held in the Hague this past May is beginning to wear off. At this point I have been back at my desk long enough to get my affairs in order and I have also regained control of my memory. I can now conjure memories of the conference at will. I have gained control of the tendency to daydream about some of the more memorable moments.

Memorable events and meaningful developments are precisely what the 4th International Conference at the Hague was all about. Meaningful events were the purpose of the First Conference in Paris, the Second Conference in Las Vegas and the Third Conference in Vienna as well. I hope that all members of the IGS look forward to the Singapore presentation of the Fifth Conference with the same anticipation as I do. I believe that 1994 will be the next tier our geosynthetic industry will raise itself to. While we all look forward to the Fifth Conference as a next step in the development and elevation of the industry, it strikes me that some of the membership of the IGS may wonder how Singapore was chosen. To be more precise, a number of people have asked me, as an officer and council member of the IGS, what the process was for choosing a conference site. I hope the following remarks will make that process

clear and I also hope that the membership is inspired to contribute to the improvement of the process.

In concept the process of conference site selection is quite simple. It consists of a call for competitive bids, intensive review of the bids received and finally the selection of a successful proposal. This process takes place over several years and involves much of the time of the officers and the council. The first step in the conference site selection process is to review whether there are any special conditions that should pertain to the site of the conference. One of those special conditions is geographic in nature. For the Fifth Conference, the council felt very strongly that Europe should be held ineligible because both the Third and Fourth Conference had been held there. This policy was adopted and the call for bids was issued. The next call for bids occurs between 2 and 3 years prior to the Singapore event. In the council meetings to be held in 1991 and 1992 the council will consider whether special geographic or other restrictions should apply to bids for the Sixth Conference. The dissemination of the invitations is accomplished by many means. The officers and council advertise the request for bids through the membership and through their professional network by word of mouth. In addition, the request for bids is announced in the newsletter, IGS News,

and in various organs of the trade press. These announcements solicit inquiry.

Any organization that expresses interest is provided a package of information for their review. This information packet contains guidelines and instructions to prepare a bid for the conference as well as defining the rules and constraints the IGS would review in determining who should host the next conference. Those inquirers who remain interested in preparing a bid use the IGS guidelines to ensure their presentation conforms to the rules. These guidelines and rules were developed from experience gained in Paris and Las Vegas. Then, they were improved by the officers and council on the basis of lessons learned in Vienna. We can expect that lessons from the Hague will be incorporated in the package for the Sixth Conference.

Bids are submitted against two deadlines. The first is a preliminary review by the officers and is conducted six months in advance of the review by the full council. The second deadline is the final analysis and approval by the council. It is interesting to note that during the preliminary review by the officers it was discovered that one of the bids for the Fifth Conference did not conform to the guidelines. As a result, both bidders were offered the opportunity to

amend their bid packages. The final selection of Singapore by the council was made because the Singapore package was the best response to the bid invitation and met all the IGS guidelines. Another interesting perspective stems from the selection of the Hague for the Fourth International Conference. This site was not selected by the council but rather by the General Assembly held in Vienna. The circumstances were as follows: the procedures and rules of the IGS provide for the council to select the site by a simple majority vote. In Vienna the council was deadlocked through several ballots. In the event of a deadlock, the process is to bring the decision to the General Assembly and this was the fact in Vienna. Considering the difficulty we all experienced in the Hague managing that precious commodity, time, I am sure that most of the membership are pleased that the council was able to reach a decision on Singapore by a clear majority.

Where will the Sixth Conference be held in 1998? I do not know but I do know that the process to select the site will begin soon and that the membership of the IGS will play an important role in the selection process. The officers and council of the IGS will welcome your contribution, comment and inquiry.

The 4th Italian Conference on Geosynthetics in Earth Structures

by

Daniele Cazzuffi, Associate Editor IGS News

More than 100 professionals attended the 4th Italian Conference on Geosynthetics held in Bologna on 25th October 1990. Organized by the Associazione Ingegneri e Architetti della Provincia di Bologna and the Bolognafiere, the conference was mainly dedicated to a review of the Italian papers presented at the 4th International Conference on Geotextiles, Geomembranes and Related Products (The Hague, 28th May - 1st June 1990).

After an opening by Ing. G. Tasselli, President of the Italian Society of Engineers and Architects, the Conference was introduced by Prof. A. Di Tommaso, Chairman of the Italian Group of RILEM (Réunion Internationale des Laboratoires d'Essais sur les Matériaux et les Constructions), who also read a letter of congratulation from IGS President, Dr. R. Kerry Rowe. The general report was presented by Prof. R. Jappelli, who thoroughly reviewed the 12 Italian articles (7 full papers and 5 communications), in the light of all the contributions published in the Proceedings of the Hague Conference. Prof. Jappelli also pointed out the important advancements made in research and design methods in geotechnical engineering. The general report was followed by 8 presentations (selected by the Organizing Committee from a total of 12) the presentations were made by Dondi (steep slopes and walls), Bordoni (embankments), Mazzucato and Fantini (filtration and drainage), Cancelli (erosion control), Sembenelli, Scuero and Cazzuffi (dams). The format of each presentation was similar to that followed in The Hague (15 minutes for oral communication and 10 minutes for discussion). Prof. R. Jappelli acted as a General Reporter at the beginning of each presentation and stimulated the discussion period that followed each speaker. Many presentations devoted to exper-

imental studies were enhanced by the inclusion of more recent results from research completed since The Hague.

As in the previous Italian conferences, the "lunch break" included a guided tour of the exhibits dealing with geotextiles, geomembranes and related products at the International Exhibition of Building Industrialization (SAIE).

The proceedings of the 3rd Italian Conference on Geosynthetics were distributed during the conference (see IGS News, November 1989). The 3rd Conference proceedings have also been published in an issue of the Italian technical journal "L'ingegnere" (No. 1/4-1990). The editors of this 200 page document are Daniele Cazzuffi and Francesco Federico. The publication is divided into two parts: the first part is dedicated to standards and contains extended abstracts both in Italian and in English of the presentations made by the 9 international speakers at the 3rd Conference. The second part, dedicated to applications, contains 20 papers (with Italian and English abstracts), including "an introduction to contact problems in earthworks" by Prof. R. Jappelli and a key-note paper on "the use of geosynthetics in the reinforcement of embankments on soft soils" by Dr. R.K. Rowe.

The Proceedings of the 3rd Italian Conference on Geosynthetics in Earth Structures are now available at a cost of \$(US)50.00 + postage \$(US)10.00 from:

Associazione Ingegneri e Architetti
della Provincia di Bologna
Strada Maggiore, 13-40125 BOLOGNA, Italy
Tel: 051 231815 - 226088 Fax: 051 230001

Activities of an IGS/NAGS Student Chapter

The University of Western Ontario

by

Brian L.J. Mylleville

London, Canada

Since its formation, the student chapter of IGS/NAGS at The University of Western Ontario has played an active role in promoting geosynthetics in civil engineering. Half of the members at The University of Western Ontario are currently pursuing post-graduate degrees directly related to geosynthetic applications.

As part of the chapter activities, representatives from various areas of the geosynthetics industry have been invited to present seminars on their respective areas of expertise. Recent talks given by Mr. Ernie Crowe (Associated Geotechnical Systems Inc.) and Mr. Paul Hewgill (Terrafix Geosynthetics) have provided excellent overview presentations on the various applications of geosynthetic products in civil engineering projects. Mr. Jurgen Krieger (Federal Highway Research Institute, FR Germany) provided his audience with some valuable insight into some of the difficulties associated with trying to match theory with

full-scale field applications in his talk entitled, "Construction, Monitoring and Analysis of Full-Scale Geosynthetic Reinforced Retaining Structures". The seminars have simulated considerable interest from local consulting engineers, providing an excellent forum for discussion regarding the use of geosynthetics.

Other activities of the student chapter have included a site visit to observe the construction and monitoring of a full-scale geosynthetic reinforced test embankment and attendance by all chapter members at the NAGS seminar "Use of Geosynthetics in Waste Containment" held in Toronto (May 1990). These activities have provided an excellent supplement to the graduate course in geosynthetics offered at The University of Western Ontario. Although still considered to be in its infancy stage, the UWO student chapter looks forward to continued growth and enthusiastic involvement with geosynthetics.

Activities of the Southeast Asia Chapter of IGS

by

R.S. Douglas, Secretary of SEAC-IGS

The Southeast Asia Chapter of the IGS has about 35 members from Singapore, Malaysia, Indonesia and Thailand. The membership is rising due to the increased use of geosynthetics in the construction industry. SEAC-IGS is dedicated to providing a venue for exchange of new ideas in the use of geotextiles, geomembranes and related products in a variety of industries. It also hopes to organize group meetings, workshops and seminars for the benefit of the members, construction engineers and the interested public. In a major effort, SEAC-IGS is making preliminary arrangements for hosting the 5th International Conference in Singapore in 1994.

Whilst the next few years obviously will entail a great deal of work for the SEAC in preparation for the 5th International Conference, other activities such as seminars and workshops will also be organized in the region. The cooperation of the members in the organization of and partici-

pation in these activities is of paramount importance and is most welcome.

The Southeast Asia Chapter has now produced the second issue of the SEAC-IGS Newsletter. This newsletter, will reach its members semi-annually. Regional and international news related to geosynthetics applications will be highlighted in this series. All members are encouraged and earnestly requested to contribute useful material; be they news of construction projects, products, applications or, field monitoring and performance. News of seminars and meetings in the region outside Singapore are also welcome.

IGS members interested in joining the Southeast Asia Chapter can contact Mr. R.S. Douglas, SEAC-IGS Secretariat, 510 Thomson Road #02-03 SLF Building, Singapore 1129, Tel: 65 353 5511 or Fax: 65 353 2424.

News of Members

Mr. Ryan Berg is pleased to announce the opening of *Ryan R. Berg & Associates, Inc.* a consulting practice specializing in geotechnical, geosynthetic, and forensic engineering; in St. Paul Minnesota, U.S.A. Mr. Michael Simac and Mr. James Walls have recently formed *InterSol Engineering Inc.*, with offices in North Carolina, U.S.A and in Milton Ontar-

io, Canada, respectively. InterSol Engineering specializes in geosynthetic product development, marketing, geotechnical engineering and application software development. Dr. Kristopher Soderman recently joined *GeoSyntec Consultants* in Boynton Beach, Florida, U.S.A.

Activities of the UK Section of IGS

by

Dr. R.A. Jewell, Chairman of the UK-IGS Chapter

1. Purpose of the UK Section of IGS

The aim is to provide a focus for the development and use of geotextiles in civil engineering. The main mechanism is the meetings programme which aims to educate and inform, reaching many who are unfamiliar with geotextiles. A UK magazine is planned with technical and news content for wide distribution (first issue October 1991). Extra copies of IGS News will be purchased for wider UK distribution. Collaboration in the organisation and promotion of courses and workshops is planned for 1991.

2. Meetings programme

The committee has decided on six meetings per annum, four of which are held outside London, one Spring meeting and the Autumn AGM remaining in London. A copy of the 1990-91 meetings programme can be obtained from John Greenwood (Tel: 0 602 418080) or Steve Corbet (0 376 513531). The 1991-92 programme will be finalised by March 1991 for inclusion in Local Association booklets (Cardiff, Reading, Birmingham, Edinburgh are the planned venues). The aim is to have at least one international lecturer each year, such as W. Voskamp in the 1991 programme.

3. Courses and workshops

Talks have been initiated for sponsorship of a one day symposium on filtration and erosion control using geotextile products in 1991 under the UK-IGS. Our role is to initiate, coordinate and promote such a meeting. The model is the successful meeting on Reinforced Embankments held in September 1989, Cambridge, with proceedings published by Thomas Telford. We aim to establish a list of courses on geotextiles in the UK and publicise these through our mailings.

4. Annual newsletter

An annual newsletter on geotextiles is planned along the lines of the 32 page GroundNote newsletter of the ICE, South Wales. Universities, consultants, contractors and others will be invited to write up their projects and activities in the field of geotextiles. The aim is to educate and inform as a method of promotion. By using space these or-

ganisations will cover the cost of printing perhaps 5,000 copies to be widely distributed.

The newsletter will be issued to coincide with the AGM (October, 1991) and will include an Editorial, as well as details of the meetings programme and contact points for UK-IGS Committee members.

5. Modus Operandi

The current membership is about 85 persons. In an attempt to increase membership an effort will be made to contact UK engineers who are interested in learning about geotextiles, bringing them in through some new "corresponding" status that puts their name on an information mailing list. This should encourage participation at meetings and symposia, and should generate new members for the Society as their interest takes root and as they learn more.

Money is being raised through donations and most recently by "local patrons" of the UK-IGS. At present there are nine local patrons, all directly involved with geotextiles (MMG, ABG Ltd, Peter Savage Ltd, Ardon, RECO, Manstock, Euro Erosion, Netlon and Exxon).

6. Committee

The executive members of the UK section are: R.A. Jewell (Chairman), C.J.F.P. Jones (Deputy Chairman), J. Paul (General Secretary), A. Bamforth (Membership Secretary), D. Wilson (Treasurer), J.R. Greenwood (Activities Secretary) and S. Corbet (Second Activities Secretary).

The committee meets at least six times a year, and thus are present at all our regional meetings.

Various people are co-opted for particular duties and co-ordination: George Milligan (Oxford) deals with research, Charles Hird (Sheffield) deals with education, and we are currently appointing the editor for the newsletter.

The two members of the IGS Council attend at least one meeting per annum, Peter Rankilor (Manstock) and Bernard Myles (Consultant). Peter Rankilor, Past-UK Chairman, runs the "local patrons" scheme and ensures the necessary feedback to patrons on the society activities.

Report of the first meeting of the Chinese Chapter of IGS

The founding meeting of the Chinese Chapter of IGS (CCIGS) was held on 9 November 1990 in Changzhou, Jiangsu Province, China. A total of 25 IGS members and several other interested persons attended the meeting which lasted for an entire day.

The meeting Chairman was Professor Chen Huan. Mr. Wang Yu-Ren (on behalf of Mr. Liu Zongyao) began the

meeting by reviewing the events that had led to this inaugural occasion. Professor Chen proposed a set of bylaws which were passed after a short discussion and modification of a few clauses.

The following officers of CCIGS were elected:

- President: Mr. Liu Zongyao
President of CTAG and Director of Technical Inquiry
Committee of Water Conservancy Bureau of Hebei
Provinces, China
- Vice-President: Professor Yang Can-Wen
Professor, Chinese Academy of Railway Sciences
- Vice-President: Professor Chen Huan
Professor, Department of Hydraulic Engineering of
Tianjin University, China
- General Secretary: Professor Wang Zheng-Hong
Professor, Post Graduate School, North China
Institute Of Water Conservancy and Hydro-Electric
Power
- Treasurer: Mr. Wang Yu-Ren
Senior Engineer of Hebei Designing Institute of
Water Conservancy and Hydro-Electric Power.

After the election, Professor Wang Zheng-Hong and other participants at the 4th International Conference on Geotextiles, Geomembranes and Related Products held in the Hague gave a synopsis of the papers presented at the conference. Next, a general discussion was held in which IGS members made many helpful suggestions on what the future work of the CCIGS should involve. The CCIGS decided to hold a seminar on the subject of soil reinforcement to be held in 1991. Finally, a Geosynthetic Study Group was formed.

The CCIGS can be contacted by writing to the President or General Secretary at the following addresses:

Mr. Lui Zongyao, President CCIGS
c/o Hebei Designing Institute of Water Conservancy
and Hydro-Electric Power, Wang Chaun Chang
Street, Hebei Area, Tianjin 300250, P.R. China

Professor Wang Zheng-Hong, General Secretary
CCIGS
c/o North China Institute of Water Conservancy and
Hydro-Electric Power, Zizhuyuan, Beijing 100044,
P.R. China

IGS Council Meeting

23-24 February 1991 - Atlanta, Georgia - U.S.A.

by

W. Voskamp, Secretary of the IGS

The IGS Council met on 23 and 24 February 1991 just prior to Geosynthetics'91. The meeting was chaired by Dr. R.Kerry Rowe, President of the IGS.

- Three individuals were co-opted to Council to undertake a number of important duties. Those co-opted in the IGS Council were:
Mr. David Price - Chairman of the promotion committee
Mr. Daniel Fayoux - Chairman of the benefits and membership committee
Mr. Francois Goussé - Associate chairman of the conference committee with the special task of planning the IGS International Conference in 1998.
- Two more co-opt positions were left open to give the IGS council the flexibility to co-opt new members if needed in the future.
- The council discussed at great length the tasks and scope of the Corporate Members Committee. In a subsequent meeting of this committee, proposals were discussed for offering additional benefits to corporate members.
- The council decided to investigate the feasibility of creating a category of "corporate supporter" or "corporate associate" as an additional benefit to IGS corporate members.
- The work of the education committee has started successfully. Contact members have been nominated at many universities and as of 2 February 1991 there are 65 students members of IGS.
- The council decided to investigate a cooperative venture between IGS and professional organizations in developing countries. The council recognized that within these organizations there is often a group of geosynthetic specialists. As the full IGS membership fee for these individuals may be too expensive and because their interest is more national than international, it was decided to explore the possibility of alternative relationships between these groups and IGS.
- The founding meeting of the Chinese Chapter of IGS was held in Chang Zhou, China on 9 November 1990 (see article on page 7).
- The financial report for 1990 and the budgets for 1991 and 1992 were approved.
- The rebate to IGS chapters for the year 1992 was approved.
- The council decided to hold its next meeting on 11-12 October in Milano, Italy.

Announcement and Call for Papers

International Symposium on Earth Reinforcement Practice

(IS Kyushu'92)

November 11–13, 1992

A Symposium on earth reinforcement practice will be held in Fukuoka, Kyushu, Japan, November 11–13, 1992, under the auspices of the Japanese Society of Soil Mechanics and Foundation Engineering. Papers are invited in the following categories:

MATERIALS: Newly developed materials/ traditional materials/ low-cost materials/ durability/ corrosion/ other.

ANALYSIS, DESIGN, and TESTING METHODS: General theory/ stress-strain characteristics of earth reinforcement/ principles of design/ seismic design/ analysis/ testing methods/ computer-aided design/ other.

CONSTRUCTION PRACTICE: Wall structures/ foundations/ embankments/ slopes/ excavations/ near-shore works/ other.

MONITORING: Techniques for monitoring/ evaluation of site damage/ other.

Interested authors are requested to submit a title of a paper with a one page abstract of about 300 words to the Symposium Secretariat by 30 September 1991. Preliminary acceptance of papers will be announced 30 November 1991 with camera-ready papers due 31 March 1992. Abstracts should be sent to the Secretariat of IS Kyushu'92 at the following address:

Professor Hidetoshi Ochiai
Secretariat of IS Kyushu'92
Department of Civil Engineering (Suiko)
Kyushu University
Hakozaki, Fukuoka 812
JAPAN

Tel: (81 92) 641 1101 ext: 5212 or 5232
Fax: (81 92) 641 5195

A Word from the Past-President

"IS Kyushu '92": This is the short name for the International Symposium on Earth Reinforcement Practice which will be held in Fukuoka, on the Island of Kyushu, Japan, 11–13 November 1992.

The recent announcement of IS Kyushu '92 was very good news to me. It brought back the memory of IS Kyushu '88 which was a beautifully organized conference with a very impressive book of proceedings.

IS Kyushu '92 will provide an opportunity to review the state of the art of soil reinforcement. I encourage all those involved with soil reinforcement to take advantage of this conference to publish papers describing their work (see

Call for Papers on this page of IGS News). I am sure that the quality of the proceedings book will be the same as in 1988. This is the best guarantee for authors that their papers will be well read and will be visible on all bookshelves.

Plan to attend IS Kyushu '92: speakers will have a wide international audience and all, speakers and attendees, will benefit from fruitful exchanges and will enjoy the famed Japanese hospitality.

*J-P. Giroud
Past-President of the IGS*

IGS welcomes three new corporate members

The President of the IGS, Dr. R.K. Rowe, and Mr. P. Stevenson, Treasurer of the IGS are pleased to announce that **Pavco S.A.** located in Bogata, Colombia; **Tenax S.P.A.** of Vigano' Brianza-Como, Italy and; **Geotextiles (M) Sdn**

Bhd of Kuala Lumpur, Malaysia have become corporate members of the IGS. The range of services, products and activities of these companies will be published in a forthcoming issue of IGS News.

Corporate Profiles

The IGS Council has decided that in each issue of the IGS News up to three Corporate Members will be allocated space to allow them to introduce their company or association and present their achievements. The criteria for selection of corpo-

rate profiles were described in IGS News, Vol. 4, No. 2, p. 7. Alternatively, you can get details by writing to the Editor. There is no charge for having a corporate profile published; it is a benefit of corporate membership.

Exxon Chemical Geopolymers Ltd.

by

Ian R. Clough

Mamhilad Park, Pontypool, Gwent NP4 OYR, United Kingdom

Exxon Chemical Geopolymers Limited was created by Exxon Chemical in 1988 to take over the TERRAM world wide geotextile business and manufacturing facilities in Pontypool, Britain, from ICI.

Terram was first produced at the Pontypool plant in 1970 as a heat bonded continuous filament nonwoven geotextile, based on polypropylene with nylon used in the bonding process. Nylon was superseded in 1979 by polyethylene as the physical requirements of the end users in the construction industry matured.

The business has grown steadily since the mid 1970's in parallel with the industry's growing confidence in the use of geotextiles. Since 1988, links have been developed between the Terram nonwoven business and the woven geotextile business of Exxon Chemical Company in the United States. Exxon Chemical Company, a division of Exxon Corporation, entered the U.S. geotextile market in 1982 as a manufacturer and supplier of woven geotextiles. This linkage has been further enhanced by the recent agreements reached with Reemay Inc. under which Exxon Chemical will market Reemay's heat bonded nonwoven geotextiles throughout the world. These products will be sold in North and South America under the TYPAR name by Exxon Chemical Geopolymers Limited based in Pontypool. The result of this agreement between two producers, each with twenty years of manufacturing end use and world wide

marketing experience, offers specifiers and customers a wide spread of knowledge in the application of geotextiles.

Exxon Chemical offers a broad product portfolio of geosynthetics as well as POLYBILT bitumen modifiers for road pavements and for roofing. Its geosynthetics include custom engineered products for ground reinforcement and landscaping, as well as Terram geotextiles for area stabilisation, subsurface drains, erosion control, landfills, septic systems and recreational facilities. Drainage composites involve BATTLE DRAIN in the U.S.A., whilst FILTRAM is well known in Europe.

Geotextiles produced by Reemay have been recognized for over two decades as pioneers in the world wide geosynthetics market place. They are produced using state of the art, highly automated spunbond technology at Reemay's facility in Old Hickory, Tennessee.

Whilst Terram has been used extensively in major projects such as the High Island Dam in Hong Kong, Hunters-ton Ore Terminal in Scotland, major ports in the Arabian Gulf and motorways in Europe, our objectives are also to seek wider but equally useful applications on a smaller scale, with products purpose made under factory controlled conditions for a wide variety of specialized end uses in construction work.

Exxon Chemical Geopolymers Ltd has been a Corporate Member of the IGS since 1988.

Kumagai Gumi Company Limited

by

Shigekazu Horiya

2-1, Tsukudo-cho, Shinjuku-ku, Tokyo, Japan

Kumagai Gumi Company Limited was established in 1928 and now is one of Japan's largest contractors with about 8,800 employees and capital of approximately 81 billion Yen (as of March 31, 1990). The company has 15 branch offices including one technical research institute and one factory in Japan and also 25 overseas offices and branches. Kumagai Gumi has highly developed skills in dam, tunnel and building construction, and engineering abilities that allow it to take part in a broad range of projects. Expertise in planning and project finance enable Kumagai Gumi to participate as both builder and developer.

An example of a recent application of geotextiles is a re-vegetation technique called the Texsol Green Method. This method is a refinement of the Texsol Method, which was developed in France and licensed exclusively to Kumagai Gumi in Japan. Texsol is a new material for walls and embankments that is formed by mixing long polyester fibers with sand at the site. The re-vegetation technique

combines the Texsol Method with a substance formulated to promote the growth of vegetation. The establishment of permanent vegetation on artificial soil requires the introduction of woody plants by seeding. However, this is a difficult task when using conventional methods since harmful ingredients such as cement and resin must be included in the artificial soil to prevent erosion. The technique enables the regeneration of the same topsoil as in the natural environment by spraying a mixture of continuous fibers and the artificial soil. This method also enables the preparation, in a short period of time, of artificial topsoil that is very similar to natural topsoil. This re-vegetation technique was recognized for the first time in the field of geotextile technology by the Japan Society of Civil Engineers in 1990 and the company has won several awards.

Kumagai Gumi has been a Corporate Member of the IGS since 1988.

Karl Mayer Textilmaschinenfabrik GmbH

by

Rolf Hufschläger

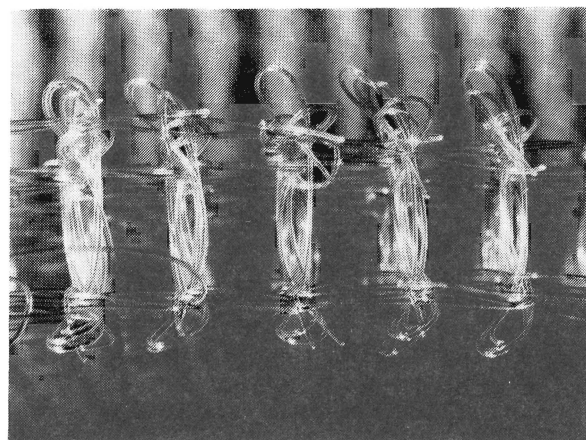
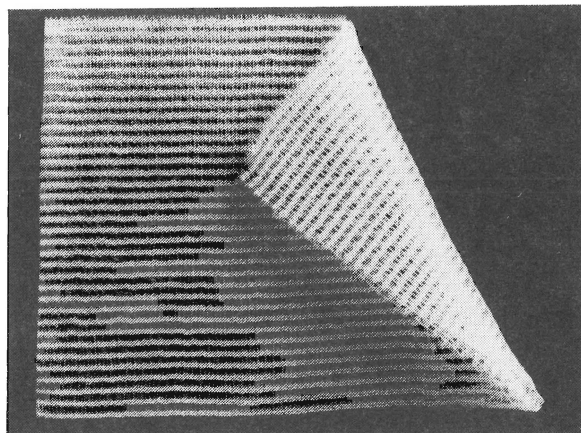
6053 Obertshausen, Brühlstraße 25, Germany

The company Karl Mayer – founded in 1937 – is one of the most important manufacturers of textile machinery for yarn preparation and for the production of textile structures. Up to now 2600 Mayer employees in the parent plant in Obertshausen and in branch factories and subsidiaries all over the world have produced 75,000 tricot and Raschel machines, 11,000 warpers and direct beamers for the weaving and knitting sectors as well as 75,000 winding units for Mayer automatic cone winders. Today Mayer textile machines are working in more than 80 countries.

An important contribution to the geosynthetics industry by Karl Mayer has been the development of equipment for the manufacture of nonwoven composites which can be mono-, bi- or even multiaxially reinforced by using the warp knitting technique. Nonwoven and warp knitted fabric have specific advantages: The nonwoven fabric ensures a plain surface whereas the warp knitted structure absorbs forces. The fed fleece fabric may be dense or open, light or heavy, thick or thin, depending on the intended application. The reinforced warp knitted fabric may also have a dense or open construction which does not influence the strength, dimensional stability or shearing strength of the fabric. The Raschel machine RSP 3 MSU-V is used for this application. On this machine the fed fleece line is reinforced by means of warps and wefts in the longitudinal and cross direction. A characteristic of this fabric construction is that the threads lie absolutely straight in the fabric rather than loop-like as with woven fabrics. If the fabric has to withstand load, it has a strength which is immediately developed and proportional to the total number of threads. The two yarn systems cannot touch each other because they are separated by the fleece. Therefore, no friction can result at the crossing points of the threads as is typical of woven fabrics. The single components – i.e. load-bearing yarn systems and nonwoven fabric – are connected in a flexible manner by an additional yarn system that in turn ensures a stable composite which is still moldable. Another new development for reinforcing nonwovens is the Raschel machine RS 2 V-N which has been developed for the reinforcement of nonwovens of low weight i.e. between 20 and 250 g/m². Only a small amount of reinforcing material has to be used. Applications include: interlinings, filters, medical materials, light-weight coating carriers, etc. Finally, these composites have great tear propagation resistance. Raschel machine type RD 6 DPLM/30-N makes it possible to produce industrial face-to-face constructions – also called dual-panel knitted fabrics or hollow fabrics – which may be used for various applications. The double-bar Raschel machine can be used to manufacture a total pile height of 16 – 30 mm; in this way most of the face-to-face constructions and/or dual-panel knitted fabrics can be produced on this machine. The fabrics consist of two textile structures connected by means of spacers (pile threads). As a rule the spacers used are rigid monofil yarns which ensure a stable hollow space between the two surfaces. Such fabrics can be for filters, drainage applications, transport and stock protection, thermal and sound insulation, etc. For the yarn preparation, Karl Mayer has developed the

warping equipment DS 21/30 – 84/40 HT (NC). The production of technical textiles requires a high degree of precision in order to meet high demands of dimensional stability and carrying capacity. Prerequisite for an optimum technical warp knitted fabric is a high degree of uniformity of all load-carrying yarns. This means that all yarns in one warp are subject to the same yarn tension. This demand cannot be easily complied with because, as a rule, high-tenacity yarns are materials that exhibit very little elongation – similar to a metal wire. This requirement has been met, however, by the new computer-controlled warping equipment DS 21/30 – 84/40 HT (NC). The three textile machines described above represent only a small part of the wide-ranging production programme of the Mayer company. In addition, it should be noted that the company has established a separate department to develop new applications for industrial textiles and publishes its own trade magazine.

Karl Mayer Textilmaschinenfabrik GmbH has been a Corporate Member of the IGS since 1985.



Face-to-face construction produced on the double-bar Raschel machine, type RD 6 DPLM/30-N (top view and cross-sectional view)

Geotextiles & Geomembranes: An Official Journal of the IGS

In 1991 the Journal continues with 6 issues per year in order to provide a more frequent service to subscribers and more timely publication for the authors. The subscription price for 1991 has been set at Pounds 160 (U.K.). The reduced subscription offer to individual IGS members represents a 40% discount off the full price, i.e. Pounds 96 (U.K.).

Reduced subscriptions are available directly from the publisher:

Subscription Department
Elsevier Applied Science Publishers
Crown House, Linton Road,
Barking, Essex IG11 8JU
United Kingdom

The Editor, T.S. Ingold, the Editorial Chairman, J-P. Giroud, the IGS Editorial Board Representative, K. van

Harten, and the IGS President, R. Kerry Rowe, all hope that IGS members will use *Geotextiles & Geomembranes* as an outlet for their technical papers and thus contribute toward the continuing success of this high quality publication which now has subscribers in over 40 countries worldwide. Papers should contain work not published in full elsewhere and should be sent to:

Dr. T.S. Ingold
Mulberry Lodge
St. Peters Close, St. Albans
Hertfordshire AL1 3ES
United Kingdom

Instructions to authors are also available from Dr. T.S. Ingold.

Contents of Recent Issues

Vol. 10 No. 1 1991

A Laboratory Study of Factors Affecting the Performance of Geotextile-Wrapped Drainage Pipes
A.B. Fourie (Republic of South Africa) & N.G. Bentley (Australia) (1-20)

Recent Laboratory Research on Unpaved Road Behaviour
Jacek Alenowicz & Eugeniusz Dembicki (Poland) (21-34)

Use of Geotextiles in the James Bay Hydroelectric Project
Jean Lafleur & J.-Jacques Paré (Canada) (35-52)

Studies of Failure Mechanisms and Design Methods for Geotextile-Reinforced Soil Walls
J. Krieger & B.R. Thamm (FRG) (53-64)

The Use of Non-Woven Geotextiles as Swine Manure Reservoir Liners
S.F. Barrington, S.O. Prasher & M. Hossein (Canada) (65-78)

Criteria for Geotextile Filters in Clayey Soils
Lia Kellner & Silvia Matei (Romania) (79-88)

Vol. 10 No. 2 1991

Special Issue: Current East European Research

The Assessment of Reclaimed Textiles for Use as Soil Reinforcement
Ulf Koehler (Germany) (91-102)

Utilization of Clogging in Geotextiles for the Sealing of Earthworks
Horst Rückert, Torsten Uhlig, Gottfried Kruse & Peter Zschernitz (Germany) (103-114)

Computer Modelling of Geotextiles Related to Mechanical Properties Evaluated by Micromechanoscropy
Oldrich Jirsák & David Lukás (Czechoslovakia) (115-124)

Stability of Fabric Reinforced Cohesive Soil Slopes
Andrzej Sawicki & Danuta Lesniewska (Poland) (125-146)

Geotextiles in Coastal Engineering Practice
Eugeniusz Dembicki & Lucyna Niespodziska (Poland) (147-160)

Soil-Geotextile System Interaction
Jacek Mlynarek, J. Bogumil Lewandowski (Poland), André L. Rollin & Gilles Bolduc (Canada) (161-176)

Vol. 10 No. 3 1991

Load Settlement Response of a Compacted Fill Layer Supported by a Geosynthetic Overlying a Void
Hormoz B. Poorooshab (Canada) (179-202)

Application of Revised Design Charts for Steep Reinforced Slopes
R.A. Jewell (UK) (203-234)

The Flow Behaviour of Deformed Prefabricated Vertical Drains
Faisal Haji Ali (Malaysia) (235-248)

Soil-Geotextile Interaction
Eugeniusz Dembicki & Piotr Jermolowicz (Poland) (249-268)

A Laboratory Assessment of the Interaction between Peat and Geosynthetics
Kazimierz Garbulewski (Poland) (269-284)

International Reinforced Soil Conference, Glasgow 1990

The International Reinforced Soil Conference (IRSC) held at the University of Strathclyde, Glasgow, from 10 to 12 September 1990 by the British Geotechnical Society (BGS) and co-sponsored by the Ground Engineering Board of the Institution of Civil Engineers (UK) was a great technical success and very much an international event with a European touch. More than 200 delegates from over 30 countries attended the conference, 45% were from UK and 55% were from Overseas. The five main sessions of the IRSC focussed on the following topics:

SESSION 1: Theory and Design Related to the Performance of Reinforced Soil Structures

SESSION 2: Construction Influences on the Performance of Reinforced Soil Structures

SESSION 3: In-Situ Techniques of Reinforced Soil

SESSION 4: Modelling and Laboratory Testing of Soil and Material Properties for Reinforced Soil Structures

SESSION 5: Design, Construction and Performance of Reinforced Soil Structures over Soft and Difficult Ground

There were five State-of-the Art reports and five General Reports in addition to the 52 papers and 13 Technical Notes presented for the five sessions. Summaries from the discussion sessions and post-conference written contributions will also be included in the final proceedings which is due to be published in early spring 1991. In total, the final proceedings will represent more than 80 papers from over 20 countries. The Conference provoked many moments of interesting and invaluable discussions.

In addition, there were many light-hearted moments and cultural activities including a sightseeing tour around Glasgow and a visit to a local whisky distillery, which proved to be a complete sellout! Participants were also invited to the City Chambers of Glasgow for an evening of wines and chamber music and to the "Conference Dinner and Scottish Evening".

The post conference proceedings will be published by Thomas Telford Publishers (UK) in early 1991. The title is "Performance of Reinforced Soil Structures" edited by Professor A. McGown, Professor K.Z. Andrawes and Dr. K.C. Yeo.

reported by K.C. Yeo

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The IGS Council

Elected in 1988: M. Fukuoka, (Japan); B. Myles (U.K.); P. Rankilor (U.K.); K. van Harten (The Netherlands).
Elected in 1990: A. Arman (U.S.A.); D. Cazzuffi (Italy); J. Perfetti (France); S.D. Ramaswamy (Singapore);
J-M. Rigo (Belgium). Co-opted in 1991: D. Price (U.S.A.); D. Fayoux (Belgium); F. Goussé (France). The IGS Council also includes the five IGS Officers elected for the period 1990-94.

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The IGS News is published 3 times per year. Material for publication should be submitted to the Editor or one of the Associate Editors by 16 February, 16 June, 16 October for the March, July and November issues respectively. Short articles and/or good quality photos (with a caption) are always very welcome.



Team "Latins" - Winners of the second IGS soccer match, The Hague, Netherlands, 28 May 1990

Back Row (left to right) J.Lafleur (Can), J.M.Rigo (Bel), M. Lampaert (Bel), P.Tagliaferri (Ita), J.Côté (Can), P.Pochettino (Ita), P.Rimoldi (Ita), A.Ratel (Fra), Ph.Delmas (Fra)
Front Row (left to right) B.Zantedeschi (Ita), D.Cazzuffi (Ita), B.Leclercq (Fra), J.Morin (Can), F.Montez (Bra), H.Girard (Fra)

Calendar of Events

International Symposium on Earth Reinforcement Practice (IS Kyushu'92)

Kyushu, Japan 11-13 November 1992

Abstracts due 30 September 1991

Contact: Professor Hidetoshi Ochiai
Secretariat of IS Kyushu'92
Department of Civil Engineering (Suiko)
Kyushu University
Hakozaki, Fukuoka 812, JAPAN

Tel: (092) 641 1101 ext: 5212 or 5232
Fax: (092) 641 5195

International Symposium on Soil Improvement and Pile Foundations

Nanjing, China 25-27 March 1992

Contact: Mr. Zhu Cun-Fu
Nanjing Civil and Architectural Engineering Society
#288 Changjiang Hou Jie
Nanjing 210018 P.R. China

International Conference on Filters and Filtration Phenomena in Geotechnical Engineering
Karlsruhe, Germany 20-22 October 1992

Topics: Design and application of granular and geotextile filters, filtration phenomena in soils, research on filtration processes.

Abstracts: due 31 July 1991

Contact: Dr.M.H. Heibaum
Bundesanstalt für Wasserbau
P.O. Box 210253
D-7500 Karlsruhe, Germany

Fax: (0) 721 7501454

Course: Les géosynthétiques

Service de l'éducation permanente, Ecole Polytechnique.
Montreal, Canada. 23-25 April 1991

Contact: Dr. André Rollin
Ecole Polytechnique
Case Postale 6079, Succ A
Montreal, Quebec H3C 3A7
Canada

Tel: 1 (514) 340 4330 Fax: 1 (514) 340 4169

Course: Effective Slope Protection and Restoration with Geosynthetics

San Diego, California, U.S.A., 27-28 June 1991

Contact: Mr. Bob Fey
Dept of Engineering Professional Develop.
University of Wisconsin-Madison
432 N. Lake Street, Madison, WI 53706

Tel: 1 (800) 462 0876

Tenth European Conference on Soil Mechanics and Foundation Engineering

Florence, Italy, 26-30 May 1991

Contact: Organizing Committee X ECSMF
c/o AGI - Associazione Geotecnica Italiana
Via Bormida, 2 00198 ROME, ITALY

Tel: 39 6 8416120 Fax: 39 6 8842265

Sardinia 91, Third International Landfill Symposium
Cagliari, Italy, 14-18 October 1991

Contact: Mrs. Anne Farmer
CISA - Environmental Sanitary Engineering
Centre, Via Marengo 34
09123 Cagliari, ITALY

Tel: 39 70 271652/281237 Fax: 39 70 271371

**ASCE Specialty Conference
Grouting, Soil Improvement & Geosynthetics**
New Orleans, U.S.A. 25-28 February 1992

Contact: Dr. I. Juran
Dept. of Civil & Environmental Engineering
Polytechnic University
333 Jay Street
Brooklyn, New York 11201, U.S.A.

Tel: 1 (718) 260 3220, 3739

5th International Conference on Geotextiles, Geomembranes and Related Products

Singapore
5-9 September 1994

Contact: Prof. S.D. Ramaswamy
National University of Singapore
Dept. of Civil Engineering
Kent Ridge Crescent
Singapore 0511

Note: Highlighted items are organized under the auspices of the IGS.

List of Corporate Members of the IGS

Akzo Industrial Systems B.V.-The Netherlands (1986)
Amoco Fabrics and Fibres Co. - U.S.A. (1987)
Asahi Chemical Industry Co. Ltd. - Japan (1984)
Associate Suisse Des Professionnels De Géotextiles-Suisse (Aspg/Svg) - Switzerland (1984)
Belton Industries Inc. - U.S.A. (1989)
Bidim Geosynthetics - France (1990)
Don & Low Ltd. - U.K. (1984)
Du Pont De Nemours Int. S.A.- Switzerland (1984)
Exxon Chemical Geopolymers Ltd. - U.K. (1988)
Fibertex Aps - Denmark (1984)
Fritz Landolt Ag - Switzerland (1985)
Gundle Lining Systems, Inc. - U.S.A. (1988)
Hoechst Celanese Corporation - U.S.A. (1984)
Huesker Synthetic GmbH and Co.-Germany (1987)
Industrial Fabrics Association International (IFAI) - U.S.A. (1985)
Japan Spunbond - Japan (1984)
Kajima Corporation - Japan (1985)
Karl Mayer Textilmaschinenfabrik GmbH- Germany (1985)

Kumagai Gumi Co. Ltd. - Japan (1987)
Kuraray Co. Ltd. - Japan (1989)
Maeda Corporation - Japan (1988)
Naue Fasertechnik GmbH and Co. KG - Germany (1987)
Netlon - U.K. (1989)
Nicolon B.V. - The Netherlands (1984)
Ohbayashi Corporation - Japan (1988)
Okasan Kogyo Co. Ltd. - Japan (1984)
Pavco S.A. - Colombia (1991)
Polyfelt GmbH - Austria (1984)
Tenax S.P.A. - Italy (1991)
Texsol - France (1989)
The Tensar Corporation - U.S.A. (1989)
The Reinforced Earth Co. - U.S.A. (1989)
Tokyu Construction Co. - Japan (1984)
Uco N.V. - Belgium (1985)
Shimizu Co. - Japan (1990)

Dates indicate earliest year of continuous membership.

OBJECTIVES OF IGS (*)



The International Geotextile Society was formed with the following objectives:

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

WHY BECOME A MEMBER OF THE IGS?

First, to contribute to the development of our profession.

Becoming a member of the International Geotextile Society:

- Helps support the aims of the IGS, especially the development of geotextiles, geomembranes, and related products.
- Contributes to the advancement of the art and science of geotextiles, geomembranes, and related products, as well as their applications.
- Provides a forum for designers, manufacturers, and users, where new ideas can be exchanged and contacts improved.

Second, to enjoy the benefits.

The following benefits are available now to all IGS members:

- A directory of members, the IGS DIRECTORY, published every year, with addresses, telephone, telex and fax numbers.
- Newsletter, IGS NEWS, published three times a year.
- Reduced purchase price on all documents published by the IGS.
- Reduced registration fee and preferential treatment at all conferences organized under the auspices of the IGS.
- Reduced subscription fee for the journal "Geotextiles and Geomembranes".
- A central system for ordering selected publications.
- Possibility of being granted an IGS award.

MEMBERSHIP APPLICATION

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) \$40 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 their membership dues, will be mentioned in the IGS Directory in a separate list as benefactors.

Send this completed form to:

Mr. P.E. Stevenson, Treasurer
226 Sitton Road
Easley, SC 29642
U.S.A.

Telephone: 1 (803) 855-0504
Fax: 1 (803) 859-1698

In this area, write a short description of your activities as you wish it to appear under your address in the next IGS Directory (e.g. "Consulting Engineer", or "Salesperson for XYZ Geotextile Company"). If the name of your company already appears in the above address, you need not repeat it in this area.

In this area, write your address as you wish it to appear in the next IGS Directory (your professional address is recommended but your personal address is acceptable provided the telephone, telex and fax numbers are also your personal numbers). *If the address below is your personal address please check this box:*

Title (circle one): Mr. Ms. Dr. Prof. Other _____

First Name _____ LAST NAME _____

Company, Division, Function (if applicable) _____

Address (Street or Postal Box) _____

City _____ Province/State _____

Postal Code _____ Country _____

Telephone _____ Telex _____ Fax _____

Eligibility (i.e. connection with geotextiles, geomembranes, or related products):

* Membership fee Individual (US) \$40.00

Corporate (US) \$1000.00

Mode of Payment

A check is enclosed

A Money Order is enclosed

* Benefactor's contribution (at least (US) \$200.00): _____

SIGNATURE _____ DATE _____

* A copy of the By-laws is available upon request.

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