

# IGS NEWS

NEWSLETTER OF THE INTERNATIONAL GEOTEXTILE SOCIETY

VOLUME 4 NO 1

MARCH 1988

## *Treasurer's Report: How The IGS Uses Your Money*

by  
*Peter Stevenson*

From the perspective of the treasurer, there are three major areas of activity within the International Geotextile Society that require funding. These areas are the provision of **services** to the membership, the **administration** of the organization, and the fueling of the Society's **growth**.

**Services** to be provided to the membership encompass several activities: The first and foremost is the preparation and publication of the three issues per year of the newsletter; much deserved applause to both Peter Jarrett, the founding editor and to Kerry Rowe the incumbent. Second is the annual directory of membership so ably compiled by the Secretary of the IGS, Mr. Massenaux. Another significant service was the collection, editing and publication of the international Standards Inventory (test methods) prepared by B. Myles and C. van den Berg. Not to be forgotten is Steve Warner's development, preparation and planned printing of the IGS brochure.

Of course the proper definition of these services is to title them "BENEFITS TO MEMBERS". The preliminary review of the 1987 financial statements for the IGS indicates that these benefits were funded by you in the sum of US \$6900.00.

The **administration** of the organization could be better described as those activities designed to facilitate the delivery of the services and benefits to you. A number of activities are undertaken in administration including:

- Management of four bank accounts.
- Communication between five officers and between officers and the Council.
- Communication between the several functions and the membership.
- Conduct of at least three meetings per year.

When the 1987 financial report is published in final form at the April Officers and Council meeting, I expect it to reflect that these several efforts required US \$1800.00 of the IGS funds.

Perhaps you may find some further definition of these items to be interesting. We maintain four bank accounts for the

following reasons. An account in the United States allows the treasurer to work in US dollars for both expenditures and receipt of funds. Similar facilities are required by the secretary, whose office in Brussels conducts approximately one half of the Society's financial transactions. Our third bank account is in Swiss francs. This account allows us to collect certain international currencies more efficiently, and at less transaction cost (or loss) than would be suffered in dollars. Finally, we maintain an investment account. Our investment income in 1987 was US \$1666.34.

Communication is a major issue. Communication costs are incurred by the president when he contacts or responds to the world geotechnical community. The subjects range from: defense of IGS members' rights in trademark disputes through the IGS role in the organization of conferences and chapters around the world. Of course the president is the spearhead of the IGS communication effort but by no means is he the only communication agency. All of the officers conduct an active dialogue with the membership and institutions that impact the membership. Vice President van Harten for example is deeply involved in the 1990 4th International Conference and he is vigorously seeking to develop and expand the benefits to members. The result of these efforts is that the average paper file reviewed at an officers meeting weighs 4 kilograms including the records developed by the treasurer and the secretary in their communication with the membership and the industry concerning fees, record accuracy and other subjects in support of the activities of the president, the vice president and the past president as needed. The communication costs share of the administrative burden in 1987 appears to be about US \$3000.00 for telephone, postage, printing and paper. The cost of conducting these multiple activities is, of course, zero for the IGS.

Three meetings per year are conducted on the Society's business. Two of these meetings are for the officers alone, the third is a meeting of the full Council. Historically the frequency has expanded in periods when issues were pressing such as an imminent International Conference. A typical officers meeting consumes a minimum of 20 hours of meeting time. A Council meeting requires approximately 22 hours plus

an abbreviated officers meeting as a precursor. Extensive preparation time is required for these events, especially from the president, secretary and treasurer.

An effort we can analyze for the time required to accomplish a task is the request for and collection of the membership fees. We estimate the preparation and mailing of invoices requires in excess of 300 hours. This figure is doubled of course by the necessity of applying time to processing your remittances. For 1987, meetings and other administration required the expenditure of US \$7500.00.

**Growth** of the IGS is of course a topic of major interest. Growth of our Society involves both promotion and development and involves the increase of membership including the addition of chapters. It also involves the presentation and representation of the Society at functions and in forums the world over.

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## Society Activity

### **IGS Officers Meet in London, Ontario**

At its meeting in September 1987, the IGS Council decided to put more emphasis on the IGS News as the primary source of communication with the membership.

Accordingly, the officers felt that the primary topic for discussion at their January 1988 meeting should be the implementation of Council's decision. Since the IGS News is edited and printed in London, Ontario, Canada, the officers decided to hold their meeting in London to facilitate discussion with the IGS News editor, Dr. R. Kerry Rowe.

As a result of this decision, and the officers meeting held in London, Ontario, the IGS News will be expanded effective July 1988. Some details regarding the changes are given in a separate article. Other items discussed at the officers meeting included:

- Financial statement and membership review
- Relationship with Geotextiles and Geomembranes (the official Journal of the IGS)
- Awards
- Organization of the next Council meeting
- The next IGS Directory
- Proposed new chapters in Southeast Asia and India

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### **“Thumbs-Up” for the Post Vienna Conference on Geotextiles, Singapore**

It was a dream come true for the members of the IGS from Southeast Asia; the post-Vienna Conference turned out to be a marvellous success. The Conference held at Hotel New Otani, Singapore from October 28-30, 1987, was supported by the IGS and sponsored by the International Society for Soil Mechanics and Foundation Engineering. It was attended by 173 delegates from 20 countries. There were 26 invited speakers most of whom were chosen from among those who had earlier presented their papers at the 3rd International Conference on Geotextiles held in Vienna in 1986. Other invited speakers were chosen from among leading product manufacturers and consultants from Southeast Asia and Asia.

I have previously mentioned the new IGS brochure currently being prepared. Additional activities include Presidential addresses at functions like the recent conference in Singapore. It is not a practical exercise to attempt to subdivide the administrative costs, or to allocate communications share of time, effort and money to this subject of growth. We can identify the non-recurrent or extraordinary costs related to such activities. In 1987 the Society expended US \$700.00 in this category.

This brief narrative is an effort to provide the membership with some understanding of the practical aspects of the Society's management. I would be pleased to attempt to answer your questions, should you feel additional information might be helpful.

- Conferences in preparation (Hamburg, Bombay, San Diego, Liege, Rio, and The Hague)
- Corporate members, membership and benefits

A detailed report on the officers meeting and the next Council meeting will be in the July issue of IGS News.

### **Next Council and Officers Meeting**

The International Geotextile Society will conduct an Officers and Council Meeting, April 15, 16 and 17, 1988 in Greenville, South Carolina.

A highlight of the occasion will be a social meeting between the membership and guests and the Council on Saturday evening April 16, from 6 to 9 pm.

This event is an opportunity for the members and prospective members of IGS to meet and communicate with the council and officers. For information contact P. Stevenson, Treasurer, at 1.803/240-2702 or J-P. Giroud, President, at 1.305/736-5400.



Concluding Session: Post Vienna Conference on Geotextiles.

From Left to Right: Prof. M. Fukuoka, Dr. S. Ramaswamy, Dr. J.P. Giroud, Prof. S.L. Lee

The conference and exhibition were officially opened by Dr. J-P Giroud, president of the IGS who commented that "The Singapore Conference is symbolic because it is based on technology transfer from west to east and from east to west: selected speakers from the Vienna Conference are given an opportunity to bring their ideas to Southeast Asian engineers and they are given an opportunity to learn from Southeast Asian engineers." The exhibition of geotextiles and related products involved a total of 12 stalls from 10 different countries. The exhibition was open to the public throughout the Conference and a large number of geotextile enthusiasts took the opportunity to view the range of products displayed by the manufacturers. The guest lectures on the 1st, 2nd and 3rd days of the conference were delivered by Dr. Giroud, Professor B.B. Broms (president of the International Society for Soil Mechanics and Foundation Engineering) and Professor M. Fukuoka (president of the Japanese chapter of the IGS) respectively.

The topics presented and discussed at the various technical sessions were chosen to be relevant to the current areas of geotextile usage in Southeast Asia. They comprised drainage, reinforcement and pavement applications and also included

## ***IGS News is Growing!***

As a result of the recent decision by the IGS Council to increase funding to IGS News, a number of changes will be implemented in 1988. These changes are summarized below.

1. Effective with this issue the numbering system has been changed to fit in with the calendar year. Thus, this issue is Volume 4, No. 1, the July 1988 issue will be Vol. 4, No. 2 and the November 1988 issue will be Vol. 4, No. 3.
2. Every year, IGS News will be published in March, July and November, and the deadline for material to be included in these issues will be February 16, June 16 and October 16 respectively.

test methods, specifications and performance evaluation. The conference provided plenty of scope for excellent interaction between the delegates both during the very lively technical sessions and the social occasions.

Another highlight of the conference was a meeting of the IGS members of Southeast Asia chaired by Dr. J-P. Giroud and attended by most of the delegates and eight members of the IGS Council. The meeting discussed the possibility of forming a Southeast Asia Chapter of the IGS to be based in Singapore. The enthusiasm and encouragement expressed by those present at the meeting left no doubt that the Southeast Asia Chapter of IGS would be a reality in the very near future.

The organizing committee which included Dr. Ramaswamy (chairman), Mr. Keonig (chairman of the technical program), and Mr. Tan (secretary) received several congratulatory messages from delegates and council members of the IGS who attended the conference. It would suffice to quote from Dr. J-P. Giroud's message in which he said, "Congratulations again for the exceptional success of the Post-Vienna Conference, which should be considered as a model for future conferences."

3. Mr. Silvio Tonus has accepted an appointment as an Associate Editor (Europe) for IGS News.
4. Effective with the July 1988 issue, IGS News will increase from 8 pages to 12 pages in length.
5. Beginning in July 1988, in every issue of IGS News three Corporate Members will be allocated up to one page each to allow them to introduce their company or association and to present their achievements. Corporate Members will be contacted by the Editor in the near future.
6. Increased emphasis will be placed on news from around the world and news relating to new products or novel applications for geotextiles and related products. If you have anything to contribute please let us know.

## ***News of the World***

### ***Geotextiles in Japan***

The Japanese Chapter has arranged a very interesting schedule of activities for geotextile specialists to be held in the early part of October, 1988. Firstly, between October 5-7, a symposium (IS Kyushu) on soil reinforcement will be held in Fukuoka City, Kyushu. At this symposium special lectures will be delivered by Prof. B. Broms (president of the International Society of Soil Mechanics & Foundation Engineering) and Prof. M. Fukuoka (past president of the ISSMFE, a council member of the IGS), and approximately 100 research papers will be presented. In addition, a seminar is scheduled which will include participation of specialists such as Mr. F. Schlosser.

On October 9 and 10, a council meeting of the IGS will be held in Tokyo. On October 11, again in Tokyo, a seminar will be held, with the participation of a number of IGS council members including Dr. J-P. Giroud, Dr. E. Leflaive, Prof. R. Floss and Prof. J-M. Rigo. A reception will be held to provide an opportunity for participants to meet directly with the council members.

The Japanese Chapter is going to hold a local symposium

on December 1, 1988 and it will welcome participation in the symposium from overseas.

Should you have any inquiry, please contact the Japanese Chapter of the IGS c/o the Japanese Society of Soil Mechanics & Foundation Engineering, Sugayama Bldg., 2-23 Kanda-Awaji-cho, Chiyoda-ku, Tokyo 101, Japan.

*(Reported by Komei Iwasaki.)*

### ***"Geosynthetics" find a place in Geotechnical News***

Robert Holtz and Barry Christopher have recently been appointed as co-editors of a new section "Geosynthetics" which will become a regular feature in **Geotechnical News**. **Geotechnical News** is the news publication of the North American members of the International Society on Soil Mechanics and Foundation Engineering and is sent to members of the Canadian Geotechnical Society, American Society of Civil Engineers (Geotechnical Division) and the Mexico National Society of Soil Mechanics. Submissions are invited for the new column "Geosynthetics" and the deadlines for 1988 are April 1, July 1 and October 1.

## **HDPE Geomembranes as Moisture Barriers in Washington's Subway System**

**by  
Mark Cadwallader**

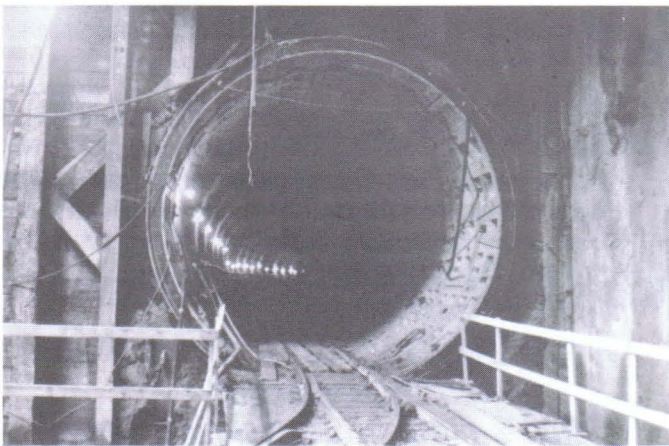
Geomembranes are being installed as barrier layers in a wide variety of applications. High density polyethylene (HDPE) in particular performs very well for barrier applications because of its very low permeability and excellent durability, coupled with advances in the seaming of HDPE liners.

Because of its excellent barrier properties as well as durability and the availability of effective seaming technique, the Washington D.C. Metro Transit Authority chose HDPE to line the subway station areas of the city's new subway system. To do so they have employed Gundle Construction Co. to install a HDPE geomembrane in order to protect people and electronic equipment from high groundwater in the Potomac river region.

The 2.5 mm thick geomembrane is being installed between the cast-in-place concrete station walls and slurry walls, down to 30 m deep. The HDPE liner is also being used to cover the ceiling of the stations. All seaming was by extrusion weld. The welding for the ceiling was accomplished from on top of the liner (street side).

Access holes, piping and electrical cable inserts were mechanically sealed with battening and neoprene gaskets. Special HDPE water stops were molded for plugging the gaps between slabs when the concrete slabs were poured.

By the time the subway project is complete in 1989, 60,000 m<sup>2</sup> of HDPE geomembrane will have been applied to the subway station walls. The durability and impermeability of HDPE is expected to keep these stations dry for many years to come.



The Washington Metro where Geomembranes have been extensively used

## **A Geotextile Society is being formed in India**

The Central Board of Irrigation and Power (CBI&P) India, a national body which co-ordinates research by sponsoring research projects at various irrigation and power research institutes, academic institutions and autonomous bodies in India, has decided to form a geotextile society in India as an affiliated body to the International Geotextile Society and

to serve as an Indian Chapter. The decision taken as a follow-up action of the first Workshop on Geotextiles and Geomembranes has received enthusiastic response in the country. The workshop was held in Vadodara, Gujarat State on 7-8 May 1987, to review the current practice relating to the use of LDPE geomembranes for canal lining.

A formal application is being prepared and will be submitted to the IGS Council for accepting the proposed Indian society as its Indian Chapter. The objectives of the society are to collect and disseminate knowledge relevant to geotextiles, geomembranes and to promote advancement in the use of geosynthetics in India.

## **Mucone Reservoir Rehabilitated with a Geomembrane Lining System**

**by  
D. Cazzuffi**

The Fall of 1987 was testing time for Mucone Reservoir in Southern Italy. Work to revamp and restore the aged structure to service started early in 1987 and lasted about four months.

Mucone Reservoir was badly cracked, giving rise to significant seepage through its original bituminous concrete liner. After considering several options, a geomembrane lining system was selected to rehabilitate the structure. The limited time required for this type of application was considered an important factor in the final selection.

The liner used was extruded PVC geomembrane, 2.1 mm thick on the slope and 1.5 mm thick on the bottom. The PVC was manufactured in rolls 1.5 m wide, 30 m long. Rolls were automatically welded using a double track-variable speed welder. The speed of the welder was continuously modified in accordance with the temperature at the welding plugs. All welded seams were tested with compressed air. The geomembrane was placed over a polyester staple fiber needle-punched geotextile (mass per unit area: 500 g/m<sup>2</sup>), installed directly over levelled and compacted ground. A network of geocomposite drainage systems was placed between the geotextile and geomembrane in order to ensure proper drainage of the design seepage at sufficiently low gradients. The geocomposite products consisted of a HDPE net, with double geotextile backing.

When placed on level ground, the geomembrane was protected with a staple fiber needle-punched geotextile (mass per unit area: 500 g/m<sup>2</sup>) covered by a 0.2 mm thick polyethylene film and by a 0.3 m reinforced concrete slab. This solution was selected to allow traffic over the bottom, if needed.

The sloping portion of the geomembrane was protected with a continuous filament needle-punched polypropylene geotextile, plus 3-5 cm of gunite over the top part of the slope; the gunite was reinforced with a HDPE net. Membrane valves were provided to avoid uplift pressure, under the gunite. The design of the remedial measures, which included monitoring of pore pressures under the geomembrane, was the responsibility of Piero Sembenelli of Milan, Italy.

The acceptance testings on geomembranes and geotextiles were carried out at the Special Materials Laboratory of ENEL-CRIS in Milan.

# Publications on Geotextiles and Geomembranes 1987

## ASCE Civil Engineering

Forsyth, R.A., Wells, G.K., and Woodstrom, J.H. 1987. The road to drained pavements. March, 1987. pp. 66-69.

Fluet, J.E. 1987. Geosynthetics, unearthing new applications. October, 1987. pp. 50-53.

## Atti Del XVI Convegno Nazionale Di Geotecnica. Bologna, 14-16 Maggio 1986.

Bigalli, F., Cazzuffi, D., and di Maio, S. 1986. La stabilizzazione delle sponde di corsi d'acqua. Atti Del XVI Convegno Nazionale Di Geotecnica. Bologna, 14-16 Maggio. pp. 111-112.

## Civil Engineering (UK)

Cannon, E.W. and Bayes, R.G.H. 1987. Permeable woven fabric form work. March, 1987. pp. 29-33.

Sangster, T. 1987. The economic justification for using geotextiles. April, 1987. pp. 27-32.

Berry, N.S.M. 1987. Geomembrane role for Nigerian dam. May, 1987. pp. 24-26.

Haylock, N. 1987. Geotextiles and geosynthetics as a drainage medium. May, 1987. pp. 41-43.

Frobel, R.K. 1987. Geotextile-geomembrane composite containment technology. July, 1987. pp. 15-20.

Butterfield, A. 1987. Designing in reinforced soil. August 1987. pp. 50-53.

## Computers and Geotechnics (Elsevier)

Burd, H.J. and Houlshby, G.T. 1986. A large strain finite element formulation for one dimensional membrane effects. 2:1(3-22).

## Geotechnical Fabrics Report

St. Paul, Minn.: Industrial Fabrics Association International. 345 Cedar Building, Suite 450, St. Paul, MN, USA, 55101. Published bi-monthly.

## Geotextiles and Geomembranes (Elsevier)

Edgar, T.V., Puckett, J.A., Sherman, W.F. and Groom, J.L. 1987. Utilizing geotextiles in highway bridge approach embankments. 5:1(3-16).

Broms, B.B. 1987. Stabilization of very soft clay using geofabric. 5:1(17-28).

Sawicki, A. and Lesniewska, D. 1987. Failure modes and bearing capacity of reinforced soil retaining walls. 5:1(29-44).

Williams, N.D. and Luna, J. 1987. Selection of geotextiles for use with synthetic drainage products. 5:1(45-62).

Weiss, W. and Batereau, C. 1987. A note on planar shear between geosynthetics and construction materials. 5:1(63-68).

Lennoz-Gratin, Ch. 1987. The use of geotextiles as drain envelopes in France in connection with mineral clogging risks. 5:2(71-90).

Kabina, P. and Mrstina, V. 1987. Problems of manufacturing prefabricated drainage filters and filtrating textiles. 5:2(91-98).

Rollin, A.L., Broughton, R.S., and Bolduc, G.F. 1987. Thin synthetic envelope materials for subsurface drainage tubes. 5:2(99-122).

Stuyt, L.C.P.M. and Oosten, A.J. 1987. Mineral and ochre clogging of subsurface land drainage systems in the Netherlands. 5:2(123-140).

Dierickx, W. 1987. Nature of synthetic envelope materials in subsurface drainage. 5:2(141-151).

## Highway and Heavy Construction

Popp, D. 1987. Spotlight, geosynthetics. 130:10(40-51).

Brown, D.C. and Munn, W.D. 1987. Now unfolding: polymers, geosynthetics, precast beams. 130:9(46-51).

## Indian Institute of Technology, Bombay

Dixit, R.K. 1985. Experimental investigations of model square footing in reinforced sand. M.Tech. Thesis. 133 pp.

Agarwal, R. 1986. Triaxial tests on reinforced sand. M.Tech. Thesis. 106 pp.

Mandal, J.N. 1987. Workshop on modern ground improvement techniques. Convened by Indian Institute of Technology, Bombay, India, March 22.

## Indian Textile Journal

Mandal, J.N. 1987. Geotextile reinforced soil beams. 97:6(104-108).

Mandal, J.N. and Agarwal, R. 1987. Some studies on soil-geotextile friction. 97:12(188-190).

Mandal, J.N. 1987. Geosynthetics in 90's. 98:7(74-89).

## Proc. American Institute of Chemical Engineers National Meeting, Boston, August 19-27, 1986.

Cadwallader, M.W. 1986. Chemical compatibility considerations for high density polyethylene liners in waste containment. Proc. AICE National Meeting, Boston, August 24-27, 1986. 16 pp.

## Proc. 40th Canadian Geotechnical Conference

Douglas, R.A. 1987. Modelling geotextile behaviour in thin access road fills over peat subgrades. Proc. 40th Canadian Geotechnical Conference. Regina, October, 1987. pp. 111-120.

## Proc. International Symposium. RILEM. Materials and Structures: Research Orientation and Industrial Needs. Bologna, ottobre 1986.

Bertacchi, P., Cazzuffi, D., Federico, F., and Jappelli, R. 1986. Research cooperation toward an oriented production of filter materials for earth structures. Proc. International Symposium. RILEM. Materials and Structures: Research Orientation and Industrial Needs. Bologna, ottobre 1986.

## Proc. National Road Congress, Cagliari, June 1986

Cazzuffi, D., Venesia, S., Zocca, A., and Rinaldi, M. 1986. La caratteristiche meccaniche dei geotessili: prove di trazione, lacerazione e punzonamento. Proc. National Road Congress, Cagliari, June 1986. pp. I-67 to I-74.

## Rassegna del Bitume

Cazzuffi, D. and Sarti, G. 1986. La manutenzione delle strutture bituminose idrauliche. Rassegna del Bitume 12:3(20-25)

## Water Power and Dam Construction

Giroud, J-P. 1987. IGS: A comment by the president of IGS. 39:3(15).

Sembenelli, P. 1987. Geosynthetics in dam construction: progress and prospects. 39:3(16).

Cazzuffi, D. 1987. The use of geomembranes in Italian dams. 39:3(17-21).

Biche, A. 1987. Triple use of a geotextile at Ait Chouarit. 39:3(22-23).

Martin, D. and Sanger, F. 1987. Developments in geocomposite research in the GDR. 39:3(24-26)

Tang-Kang, T., Zhao-Chang, Z., and Ren-Nam, T. 1987. Recent applications of geotextile filters in China. 39:3(35-39)

*Did we miss your publication in 1987 or do you have a 1988 publication? If you would like it listed in the next issue, please send details to*

Dr. R.A. Douglas  
Dept. of Forest Engineering  
University of New Brunswick  
P.O. Box 4400  
Fredericton, N.B.  
E3B 5A3 Canada  
Telex: 014-46-202

# Research Activity

To provide a medium for improving coordination and possible cooperation in research, it is planned to include a section on research activity in each issue of the IGS Newsletter. Researchers and institutions are hereby requested to send the editor a short description of current and future research activities related to geotextiles for inclusion in this report. We would also like to publish a list of theses (M.S. or Ph.D.) which have been written on geotextiles. Former students and/or their supervisors are invited to send details of the theses to the editor on a continuing basis.

Dr. G.P. Raymond  
Department of Civil Engineering  
Queen's University  
Kingston, Ontario, Canada

Topic: *Geotextiles in Railway Applications*

Consideration is being given to the use of geotextiles to provide separation and drainage for railways constructed on poor subgrades. Particular attention is being paid to the specifications for selecting suitable geotextiles for separation and drainage and on the importance of installation.

Mr. Kris Fabian and Dr. Andy Fourie  
Queensland Institute of Technology and  
University of Queensland  
Brisbane, Qld., Australia

Topic 1: *Clay-Geotextile Friction*

Laboratory tests are being performed to determine clay-geotextile friction properties using direct shear, pullout and triaxial tests in both undrained and drained conditions.

Topic 2: *Effect of Confinement on Tensile Properties of Geotextiles*

Pullout tests are being conducted to determine the effect of soil confinement on the tensile stiffness of geotextiles.

Topic: *Soil Reinforcement*

Large model tests will be conducted to determine the effect of geotextile reinforcement for reinforced clay walls and embankments.

## IGS Publications

### **First International Conference**

"Proceedings of the International Conference on the Use of Fabrics in Geotechnics" (Three Volumes)  
to be ordered from:  
ENPC, Service Formation Continue, 28 rue des Saints Pères, 75006 Paris, France

The publications listed below can be ordered from  
IGS Secretariat, 51 Avenue des Cerisiers, 1040 Brussels, Belgium

### **Second International Conference**

"Proceedings of the Second International Conference on Geotextiles." (Four Volumes)

Price: \$72 plus postage to be ordered from:  
IFAI, 345 Cedar Building, Suite 450, Saint Paul, MN 55101, USA

### **Third International Conference**

"Proceedings of the Third International Conference on Geotextiles" (Four Volumes)

Price: US\$ 128 for America, 300 hfl for the rest of the world to be ordered from:

IFAI (see address above), for America, or, for the rest of the world, from: BALKEMA, Postbus 1675, NL-3000 BR Rotterdam, Netherlands

### **Directory of Members 1987**

Name, address, telephone, telex and telecopy number of all IGS members as of 30 June 1987. All IGS members should have received a free copy \$10 per additional copy for members - Price for nonmembers \$15

### **Geotextile Testing Inventory 1986**

A 217-page compilation of geotextile test methods used in 13 countries. Price for IGS members \$60. Price for nonmembers \$90

### **Symbols for Geotechnical Engineering, Geotextiles and Geomembranes**

A list of symbols adopted by the IGS for the Third International Conference on Geotextiles.

Free for IGS members. Not available to nonmembers

## IGS Affiliation with Geotextiles & Geomembranes

The international journal **Geotextiles & Geomembranes** is an official journal of the IGS. Individual IGS members may now obtain a subscription to the journal at a discount of 40 percent off the list price. Such 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 Board Chairman, J-P. Giroud and the IGS Editorial Board Representative, K. van Harten, 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)

## Officers of the IGS

Dr. Jean-Pierre Giroud (President)  
GeoServices Inc.  
1200 S. Federal Highway  
Suite 204  
Boynton Beach, FL 33435  
U.S.A.

Dr. Guy Massenaux (Secretary)  
EDANA  
Avenue des Cerisiers, 51  
1040 Brussels  
Belgium

Mr. Charles Schaerer (Past-President)  
Buchenweg 2  
8116 Wuerenlos  
Switzerland

Prof. Ir. Koos van Harten (Vice-President)  
Mechanical Engineering Department  
Technische Universiteit Delft  
Postbus 5036  
2600 GA Delft  
The Netherlands

Mr. Peter E. Stevenson (Treasurer)  
James River Corporation  
Route 4, Box 607  
Easley, SC 29640  
U.S.A.

# Calendar of Events

## TRI 58th Annual Conference

Charlotte, North Carolina, USA

12-13 April 1988

Contact: Textile Research Institute  
P.O. Box 625  
Princeton, New Jersey 08542, USA

## Mechanical Aspects of Soil Reinforcement

Grenoble, France

19-22 April 1988

Contact: Dr. J-P. Gourc  
I.R.I.G.M.  
Universite de Grenoble I  
B.P. 68  
38402 Saint-Martin D'Herès Cedex  
France

## ASCE Specialty Conference: Geosynthetics for Soil Improvement

Nashville, Tennessee, U.S.A.

9-11 May 1988

Contact: Prof. R. Holtz  
School of Civil Engineering  
Grissom Hall  
Purdue University  
West Lafayette, IN 47909, U.S.A.

## Short Course: Landfill Lining Systems - Design and Installation

Bethlehem, Pennsylvania, U.S.A.

19-20 May 1988

Contact: J-P. Giroud or J.E. Fluet  
Geoservices, Suite 204  
1200 S. Federal Highway  
Boynton Beach, FL 33435, U.S.A.

## 2nd International Conference on Case Histories in Geotechnical Engineering

St. Louis, Missouri, U.S.A.

1-5 June 1988

Contact: Prof. S. Prakash  
Dept. of Civil Engineering  
University of Missouri-Rolla  
Rolla, MO 65401-0249, U.S.A.

## EDANA Nonwovens Symposium

Stockholm, Sweden

7-8 June 1988

Contact: P. Preest  
Edana, 51, Avenue des Cerisiers  
1040 Brussels, Belgium

## Hydraulic Fill Structures '88

Fort Collins, Colorado, U.S.A.

14-17 August 1988

Contact: J.L. Montera  
Dept. of Civil Engineering  
Colorado State University  
Fort Collins, CO 80523, U.S.A.

## BNCOLD: Reservoirs '88

Manchester, U.K.

15-17 September 1988

Contact: N. Tyler  
The Institution of Civil Engineers  
Great George St.  
London, SW1P 3AA, U.K.

## Kongress Kunststoffe in der Geotechnik (K-Geo 88)

Hamburg, Germany

29-30 September 1988

Contact: Prof. Dr. R. Floss  
Lehrstuhl und Prüfstuhl für  
Grundbau  
Bodenmechanik und Felsmechanik  
der TV  
München, Baumbachstrasse 7  
8000 Munich 60, Germany

## 3rd Canadian Symposium on Geosynthetics

Waterloo, Ontario, Canada

4 October 1988

Abstracts due: March 31 1988

Papers due: August 15 1988

Contact: Dr. G.P. Raymond  
Dept. of Civil Engineering  
Queen's University  
Kingston, Ontario K7L 3N6 Canada

## International Geotechnical Symposium on the Theory and Practice of Earth Reinforcement

Kyushu, Japan

5-7 October 1988

Contact: Prof. N. Miura  
Dept. of Civil Engineering  
Saga University  
Saga 840, Japan

## IDEA 88, International Nonwovens Conference

Baltimore, Maryland, USA

24-26 October 1988

Contact: INDA  
1700 Broadway  
New York, N.Y. 10019, USA

## Short Courses: Designing With Geosynthetics

Philadelphia, PA 3-4 November 1988

Chicago, IL 10-11 November 1988

Atlanta, GA 17-18 November 1988

Contact: M.V. Ashley  
Geosynthetics Research Institute  
Drexel University, Rush Bldg. 1  
No. 10  
Philadelphia, PA 19104, USA

## First Indian Geotextiles Conference

Bombay, India

8-9 December 1988

Contact: Dr. J.N. Mandal  
Organising Secretary  
FIGC-88  
Civil Engineering Department  
IIT, Powai, Bombay - 400 076,  
India

## 2nd GRI Seminar: Durability and Aging of Geosynthetics

Philadelphia, Pennsylvania, USA

8-9 December 1988

Contact: M.V. Ashley  
Geosynthetics Research Institute  
Drexel University, Rush Bldg. 1  
No. 10  
Philadelphia, PA 19104, USA

## ASTM Symposium: Microstructure and the Performance of Geosynthetics

Orlando, Florida, USA

26 January 1989

Abstracts Due: 1 April 1988

Papers Due: 1 October 1988

Contact: Dr. I. Peggs  
Geosyntec Inc.  
3050 SW 14th Place, Suite 18  
Boynton Beach, FL 33426 USA

## Geosynthetics '89

San Diego, California, USA

20-24 February 1989

Contact: Judy Dean  
Secretary General  
IFAI  
345 Cedar St., Suite 450  
St. Paul, MN 55101 USA

## RILEM Conference: Reflective Cracking in Pavements

Liege, Belgium

8-10 March 1989

Contact: J.M. Rigo  
State University Liege  
Quai Banning 6  
B4000 Liege, Belgium

## Twelfth International Conference on Soil Mechanics and Foundation Engineering

Rio de Janeiro, Brazil

13-18 August 1989

Contact: Prof. Costa Nunes  
12th ICSMFE  
Caixa Postal 1559  
20000 Rio de Janeiro, RJ, Brazil

## Fourth International Conference on Geotextiles, Geomembranes, and Related Products

The Hague, The Netherlands

27 May-1 June 1990

Contact: Prof. K. van Harten  
University of Technology, Delft  
2 Mekelweg  
P.O. Box 5036  
2600 GA Delft, The Netherlands

*Note: Highlighted items are organized under the  
auspices of or with the support of the IGS.*

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## 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 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 telecopy 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) \$30 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.

*If you are in North, Central, or South America, send this completed form to:*

Mr. P.E. Stevenson, Treasurer  
c/o James River Corporation  
Nonwovens Division  
Route 4, Box 607  
Easley, SC, 29640 USA  
Telephone: (1.803) 240-2600  
Telex: 9102401933 Telefax: (1.803) 240-2695

*If you are in the rest of the world send this completed form to:*

Mr. Guy Massenaux, Secretary  
c/o EDANA  
51, Ave des Cerisiers  
1040 Brussels  
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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 telefax numbers are also your personal numbers).

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

• Membership fee – Individual (US) \$ 30.00   
Corporate (US) \$1000.00

• Benefactor's contribution (at least (US) \$200): \_\_\_\_\_

Mode of payment –  A check is enclosed  The applicant hereby agrees to pay the above total amount upon receipt of an invoice

SIGNATURE ..... DATE .....

\* A copy of the byelaws is available upon request.