

IGS NEWS



NEWSLETTER OF THE INTERNATIONAL GEOTEXTILE SOCIETY
VOLUME 7 NO 2

JULY 1991

A REVIEW OF THE PAST YEAR

by

Dr. R. Kerry Rowe, President of the IGS

It is now a little over one year since the 4th International Conference was held in The Hague and the new officers and council members were elected. The IGS has been very active during this period and the following attempts to summarize some of this activity.

Chapters

The IGS chapters are very important in that they are in the position to organize local activities for IGS members. To assist the chapters in organizing these activities, the IGS has instituted a policy of providing a rebate of a portion of the individual membership fee to the chapters. This fee is to be used in organizing activities for the members of the chapters. I am pleased to report that there has been a growth in chapter activity and membership. The executives of the various chapters are to be congratulated on their hard work and dedication. Unfortunately, there are still many regions of the world where there is no IGS chapter. The membership rebate provides a mechanism for funding part, or, in some cases, all chapter activity. Discussions are currently being held with a number of groups of IGS members with respect to forming several new chapters. Any group of individuals in a country or region interested in forming a chapter are invited to contact me or IGS Vice-President Professor R. Floss (the addresses of IGS Officers and Committee Chairmen are given on page 10). To aid communication between the chapters and the IGS an advisory board has been established with members being drawn from the chairmen of the chapters and the executive of the IGS. The chapters are being invited to provide input with respect to all matters being discussed by the IGS council.

Students

The category of "Student Member" was established in The Hague in 1990. Since that time there has been a substantial number of new student members in some countries (most notably in Japan). Some student members have formed 'student chapters' which are organizing local lectures, site visits, etc., (e.g. see the article in IGS News Vol 7, No. 1, p.6). These students are very important to the fu-

ture development of the IGS and the geosynthetics discipline generally. I would encourage any member with access to students to encourage student membership in their local area. If you have any questions regarding student members or the work of the Education Committee please contact me or the Chairman of the Education Committee, Mr. D. Cazzuffi.

Conferences

The last issue of the IGS News reported on the resounding success of the Geosynthetics '91 held in Atlanta (more than 1200 registrants). The IGS has been keen to promote conferences, seminars and lectures which promote the discipline in a generic manner. Some future conferences are listed in the IGS News. If you are planning a conference and would like IGS support please contact me or the Chairman of the Conference Committee, Mr. B. Myles; we would be delighted to help. The Conference Committee has already begun work on the call for proposals for the 6th International Conference (to be held in 1998). Anyone interested in being involved with the Conference Committee should contact Mr. Myles or Mr. F. Gousse. IGS Immediate Past-President, Dr. J-P. Giroud is representing the IGS Council on the Organizing Committee of the 5th International Conference to be held in Singapore 5-9 September 1994. This looks like an excellent event - please reserve the date in your calendar.

Benefits

We have been pleased to have been able to arrange with GW World for IGS members to have a free subscription to GW World.

Other

The IGS Committees and Council are working on many proposals. If you would like to be involved please contact the appropriate Open Committee Chairman or me. This is your Society and the IGS Council both seeks and values your input. If you have any suggestions regarding the IGS please do not hesitate to contact me.

Letters to the Editor

In the Vol 6 No. 3 issue of IGS News 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 society be changed to the "International Geosynthetics Society". In the last issue,

(Vol 7 No. 1) both the president and past-president of IGS responded to the challenge offered by Mr. Denis. The debate continues with the following letter from Dr. S.D. Ramaswamy.

What's in a name?

This letter is in response to the CALL FOR ACTION write-up which was published in IGS News, Vol 6 No 3, November 1990 and I wish to voice my opinion on the issue of changing the name of the International Geotextile Society to the International Geosynthetics Society.

The letter by Mr. Robert Denis in the same issue of IGS News referenced above is very nicely and convincingly written. If one is not aware of the existence of natural biodegradable geotextiles, one would instantly vote for the change of name to geosynthetics from geotextiles. Natural geotextiles made out of bamboo, jute, coir, etc, are being increasingly used and new products using them are being developed in the developing countries of Asia and South-east Asia such as China, India, Bangladesh, Indonesia, etc. As the only IGS Council Member from that region, I feel it is my duty to put forth my views on this matter.

Jute netting/jute mesh/geojute, etc as a soil saver has been used in large quantities for erosion control of slopes in USA and Europe for over 40 years or so. I saw for myself the Ludlow Jute Mills at Calcutta manufacturing thousands of tons of jute netting for export. PT. Indonesia Nihon Seima Jute Mill in Indonesia has been producing millions of metres of prefabricated fibredrain made out of jute and coir for use in soft clay consolidation projects in the region. In 1991, in Indonesia alone about 2 million metres of fibredrain are expected to be used which indicates its popularity. Treated jute geotextile has been successfully used for bank protection at Haldia Port near Calcutta. New innovations in natural geotextiles have been in needle punched nonwovens, hybrid materials combining natural and synthetic fibres, jute-synthetic canal and reservoir linings, etc. The popularity of natural geotextile usage is on the increase because of success stories, economy, savings in foreign exchange and use of unskilled labour. Environmental acceptability is another factor.

Although natural geotextiles are no match for synthetics in terms of long-term strength and durability, they can come in handy for such applications where long-term strength and durability may not be a matter of concern. Fibredrain being used in Indonesia is one such example. It is therefore not surprising that some developing countries are trying to promote natural geotextile research and applications.

You may not know that Mr. D.A. Cazzuffi, an IGS Council member from Italy, has worked as the chairman of a working group on design, installation and maintenance of

natural vegetative bank protections involving natural material applications commissioned by permanent international association navigation congresses. I am also on the same committee as a corresponding member from South-east Asia.

Dr. Kerry Rowe, President of the IGS, in his letter that originally appeared in Geotechnical Fabrics Report, November 1990 and republished in the IGS News March 1991 issue, very nicely defined the terms "geotextiles" and "geosynthetics". While keeping an open mind and leaving the final decision to the IGS Council and to IGS Members, he did express concern that the word "geosynthetics" may be interpreted to exclude many materials which geotextiles include. The point is therefore whether we would like to ban certain geotextile materials which are not made out of synthetics. Dr. Rowe's letter under the title "The President's Response" serves to align many of the IGS member's thinking about the issue along a more open-minded approach.

Under the title "The Past-President's Response" in the March 1991 issue of the IGS News, Dr. J-P. Giroud has also touched on the issue of change of name very nicely. He narrates interestingly, the historical development since 1977 that led to the coining of new words such as "geotextiles" and "geomembranes". He said that in selecting a name for a professional society, 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 developing the use of natural fibers?" Again, it suggests an open-minded approach not to exclude natural geotextiles.

Now, coming back to the change: the replacement of the term "geotextiles" with the word "geosynthetics" would naturally exclude natural geotextiles. The real need to change the name appears simply to get rid of the word textiles. Why not think of a name which does not exclude natural geotextiles, say - International Society for Geosynthetics and Nonsynthetics, International Society for Geoflexibles, International Society of Geofibre Materials - to name a few possibilities. Better still -leave it as it is. Why change at all?

*S.D. Ramaswamy
President SEAC-IGS, Singapore*

To the Membership of the By-laws Committee and the Membership of the IGS in general:

Gentlemen and Ladies:

This letter responds to the several comments and concepts raised by the By-laws committee to the two issues of the Societies' name and the IGS election procedure. First let me welcome the volunteers who have either formally joined the committee or offered their views.

Mr. J.W. Cowland	Hong Kong
Prof. M. Fukuoka	Japan
Mr. Ravesh Gupta	India
Mr. Jim Paul	United Kingdom
Dr. S.D. Ramaswamy	Singapore
Dr. Peter Rankilor	United Kingdom
Mr. S.N. Sodhi	India
Mr. Wim Voskamp	The Netherlands

This note is a report of the discussions to date and I will report on the issue of the name change first. To begin with, we must refer to Bob Denis's thought-provoking comments published in both the IGS News and the GFR. I will provide copies of this letter or any other documents I refer to anyone that requests them. Second, Past-President Dr. Giroud has placed the problem of a name change in good perspective by his well-argued response to Bob Denis. Dr. Giroud's point is that a change of name for our society is an extremely complex issue.

Dr. Rankilor argues the same point; Geotextiles has become a generic and all encompassing concept. Let's leave it alone. Dr. Ramaswamy also agrees and points out that,

should we change the name, we shall have to address geofibre, geo-natural, geo-anything and this might result in a name that has 10 or more descriptive words. Mr. Cowland supports Mr. Denis and seconds the call for a clear, all-encompassing identification for our society and our industry. Mr. Voskamp argues for a mail ballot after all arguments are aired and all proposals heard. What shall we do? Please continue to offer your ideas. Contact your council member. The next step will be my report to the council in Milan in October.

Let me turn now to the election process. Remarkably, this issue is far less controversial although opinions do vary. Prof. Fukuoka says leave the system alone and improve the ballot count by expanding and training the staff. Dr. Rankilor supports the proposals in the call for action to streamline the process and offers to assist in the development of a computerized system to speed the count. Mr. Voskamp offers 10 steps to augment the ideas in the call to action. Overall, there is a universal support for improved speed and efficiency and there is a strong support for holding a major part of the election prior to the General Assembly. The next step will be a presentation to the council and discussion in Milan. All members of the IGS are invited to send their views to me.

Very truly yours,

Peter E. Stevenson
Chairman of the By-laws Committee

Publications Recommended by IGS

Conference Proceedings:

First International Conference 1977- Paris "Proceedings of the International Conference on the Use of Fabrics in Geotechnics" (Three Volumes). Price US\$60 plus postage. Order from: ENPC, Service Formation Continue, 28 rue des Saints Pères, 75006 Paris, France

Second International Conference 1982- Las Vegas "Proceedings of the Second International Conference on Geotextiles" (Four Volumes) Price: US\$72 plus postage. Order from: IFAI, 345 Cedar St., Suite 800, St. Paul, MN 55101, U.S.A.

Third International Conference 1986- Vienna "Proceedings of the Third International Conference on Geotextiles" (Four Volumes) Price: US\$128 for America, 300 hfl for the rest of the world. Add postage. Order from: IFAI (see address above), for America. Rest of the world: BALKEMA, P.O. Box 1675, NL-3000 BR Rotterdam, The Netherlands

Proceedings of Geosynthetics '87 New Orleans, U.S.A. 1987. Price: US\$50 plus postage. Order from: IFAI, 345 Cedar St., Suite 800, St. Paul, MN 55101, U.S.A.

Proceedings of 1 Kongress Kunststoffe in der Geotechnik K-GEO 88 Hamburg, Germany, 1988. Price: DM105 for individuals; DM80 for members of DGEG. Order from:

Deutsche Gesellschaft für Erd-und Grundbau, e.V. Hohenzollernstrasse 52 D, 4300 Essen. 1 Germany

Proceedings of the Post Vienna Conference on Geotextiles Singapore, 1988. Price: US\$50 plus postage. Order from: Conference Logistics & Services, Orchard Point Post Office Box 576, Singapore 9123

Proceedings of the International Geotechnical Symposium: Theory and Practice of Earth Reinforcement, Fukuoka, Japan, 1988. Price: US\$59, 120 hfl. Order from: BALKEMA, P.O. Box 1675, NL-3000 BR Rotterdam, The Netherlands

Proceedings of Geosynthetics '89 San Diego, U.S.A. 1989. Price: US\$55 plus postage. Order from: IFAI, 345 Cedar St., Suite 800, St. Paul, MN 55101, U.S.A.

Fourth International Conference 1990- The Hague "Proceedings of the Fourth International Conference on Geotextiles, Geomembranes and Related Products" (Three Volumes). Price: US\$160 plus postage. Order from: BALKEMA, P.O. Box 1675, NL-3000 BR Rotterdam, The Netherlands

Proceedings of Geosynthetics '91 Atlanta, U.S.A. 1991. Price: US\$55 plus postage. Order from: IFAI, 345 Cedar St., Suite 800, St. Paul, MN 55101, U.S.A.

continued ...

Publications of the IGS

The publications listed below can be ordered from: IGS Secretariat, P.O. Box 2233, 3440 DE Woerden, The Netherlands

Directory of Members 1991 Name, address, telephone, telex and fax number of all IGS members as of 15 July 1991. *All IGS members receive a free copy. US\$10 plus postage per additional copy for members. Price for nonmembers US\$40 plus postage*

Inventory of current geotextile test methods and standards 1990. A 154-page compilation of test methods used in most countries of the world. *Price for IGS members US\$60 plus postage. Price for nonmembers US\$90 plus postage. 3 1/2 or 5 1/4" diskette with database of test methods. Price for IGS members US\$95 plus postage. Price for nonmembers US\$120 plus postage.*

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*

Fifth International Conference (Singapore, 5-9 Sept 1994) Organizers meet International Advisors

The organizing committee of the 5th International Conference on Geotextiles, Geomembranes and Related Products had the pleasure of welcoming to Singapore Dr. J-P. Giroud, the Past-President of IGS and Mr. G. den Hoedt, the General Secretary of the organizing committee of the 4th International Conference held in The Hague in May 1990. Messrs Giroud and den Hoedt travelled to Singapore in their capacities as IGS-appointed advisors to the Singapore organizing committee. The meeting which lasted from 13 to 15 May was a very fruitful plenary session to further the organizing activities in Singapore and to discuss progress which the committee has made in its planning timetable since Singapore was selected as the site for the 5th International Conference. The session also included a series of discussions, exchange of ideas and meetings with local IGS members and professionals in the industry. Tentatively the 5th Conference in 1994 will cover the standard themes such as soil reinforcement, roads and other transportation structures, drainage/filtration, waste and liquid containment, erosion control, testing and standards, long-term experience and special applications. Themes to highlight the regional focus and new solutions and directions are also being considered. With the forecast for high economic growth in Asia, the organizing commit-

tee expects a strong response from both regional and international delegates and contributors. A visual display session incorporating posters, slides, video presentations and computer based displays will be a special feature at this conference. The exhibition for products and their application is also expected to bring in more participants and visitors to the conference. Other topics discussed between the organizing committee and its advisors included the planning timetable, probable venues, publicity campaigns, a draft conference schedule and paper selection procedures. The IGS advisors were impressed with the modern conference facilities and the high standard of affordable accommodation available at the potential conference venues. The organizing committee is taking great care to select a modern functional venue allowing delegates easy access between exhibition areas and the conference theaters. While the currently preferred site offers these facilities within a major hotel complex, the organizers will be able to offer alternative hotel accommodation for more budget conscious delegates.

A call for papers is scheduled to be issued in May 1992.

reported by Prof. G.P. Karunaratne

A Word from the Past-President

As representative of the IGS on the organizing committee of the Fifth International Conference on Geotextiles and Geomembranes, I went to Singapore to attend a plenary meeting of the organizing committee. Also attending was Mr. den Hoedt, Secretary General of the organizing committee of the Fourth Conference, held in May 1990 in the Hague, the Netherlands. It was a great pleasure for me to be in Singapore again, almost four years after the remarkable "Post Vienna Conference", which, as its role model the Vienna Conference, left wonderful memories to all participants. My pleasure was even greater when I visited the facilities which are being considered for the conference: an elegant and very functional set of conference and exhibit halls, all at the same level and conveniently connected with each other. Furthermore, during my morning jogging I was stunned to discover a football field only 100 meters from the probable venue of the conference! (Si, Daniele Cazzuffi, uno stadio di calcio si trova ad un centinaio di metri soltanto dalla sede della conferenza.) A record participation may therefore be expected at the traditional football game on the opening day of the conference.

I was impressed by the work already done by the organizing committee members from Southeast Asia. During our 22 hours of meeting we accomplished a lot, as reported in the article by Prof. Karunaratne. I should also mention the essential contribution from Mr. den Hoedt who stayed an additional day to present to our Southeast Asian colleagues the impressive knowledge he had accumulated as a result of the perfect organization of the Hague Conference. During my trip back home, I remembered that, when I initiated the formation of the IGS in 1982, the first mission I had in mind for this new society was to ensure that international conferences be held on a regular basis and in an orderly manner. Clearly, after the success of the Third Conference in Vienna and the Fourth Conference in The Hague, and with the excellent start of the organization of the Fifth Conference, the IGS is fulfilling its first mission very well. We have, therefore, every reason to believe that the Fifth Conference will be a great success. So, do as I have, put it in your calendar now: "5-9 September 1994, Singapore, 5th International Conference".

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

Geosynthetics in Dams in the United States

Every year, the United States Committee on Large Dams (USCOLD) selects a different theme for the lectures presented at its annual meeting. This year, for the first time, the theme was Geosynthetics in Dams. The North American Geosynthetics Society (NAGS) – the North American Chapter of the IGS – was invited by the USCOLD to select five speakers for the first session (30 April 1991, afternoon). Larry Roth presented general considerations for the use of geosynthetics in dams; Professor Robert Holtz, President of NAGS, presented an overview of geosynthetics; Ronald Froebel presented the various types of geomembranes as well as several applications of geomembranes in dams in the United States; Professor Robert Koerner, Past President of NAGS, presented an in-depth discussion of the durability of geomembranes, with special emphasis on their applications in dams; finally, Dr. Jean-Pierre Giroud, Past-President of the IGS, reviewed various aspects of the design of dams with geosynthetics and presented a number of case histories.

During the second session (1 May 1991, morning), six case histories were presented by members of the USCOLD. These case histories described uses of geosynthetics in such applications as dam rehabilitation, canal lining, reservoirs, and embankments on soft soils. Proceedings titled: "Use of Geosynthetics in Dams" can be ordered from the USCOLD, 1616 Seventeenth Street, Suite 483, Denver, Colorado 80202, USA. It is also possible to order from the USCOLD a copy of "Watertight Geomembranes

for Dams", Bulletin 78 of the International Commission on Large Dams (ICOLD).

This meeting, which was held in White Plains, New York, is an important step in the development of geosynthetic applications in the United States where engineers designing dams have so far been extremely cautious, to say the least, regarding uses of geosynthetics. In fact, during the discussions several members of the USCOLD proposed rather strict limitations to the use of geosynthetics in dams. In his closing remarks, during the luncheon following the session, Dr. Giroud replied vigorously to what he considered over-conservative comments that were made during the session and pertinently noted that designers of dams do not hesitate to use materials such as unsaturated clays that are more complex and potentially more dangerous than geosynthetics.

A couple of events following the USCOLD meeting demonstrate the growing interest for geosynthetics in the US dam community: Dr. Giroud has been invited to teach a two-day intensive course on the uses of geosynthetics in dams to members of the Association of State Dam Safety Officials (ASDSO); he has also been invited to present a state-of-the-art lecture on geosynthetics in dams at the Annual Conference of the ASDSO in San Diego, California, 1 October 1991.

reported by R.M. Koerner and J-P. Giroud

Geosynthetics: Design and Performance

Vancouver Geotechnical Society, 6th Annual Symposium Vancouver, B.C., May 1991

Geosynthetics are recognized as providing one or a combination of five basic functions in engineering practice. Bob Koerner, in his keynote address to the symposium, critically reviewed these functions of separation, reinforcement, filtration, drainage and liquid barrier. Giving consideration to the current state-of-the-art, he identified those issues which he felt are critical for each area of application, namely: durability assessment and lifetime prediction; clogging and soil retention; creep and stress relaxation.

The eight papers presented in the technical session addressed analysis, design and specification of geosynthetics, and performance of field structures. Factors influencing the design and performance of reinforced soil structures were discussed in the morning session. The importance of good quality field data to guide the development of rational design approaches and to assess the serviceability performance of walls was emphasized by Bathurst and Simac. Bowden presented the approach used in design of a stepped wall structure and related experience gained during construction. Use of poor quality soils as backfill in reinforced soil structures offers a potential for cost savings in construction: Liu et al. reported field measurements from a reinforced clayey silt embankment, including horizontal and vertical displacements.

In the afternoon session Fannin discussed the role of Standard Test data in design to meet regulatory guidance, and in specifications. Characteristic values of interface shear strength from direct shear box tests of several soil/geosynthetic combinations were reported by Lam and Tape. Corser and Cranston described a field trial to assess the long-term performance of composite clay liners and covers. An overview of geosynthetic applications in highway construction and maintenance was given by Dyaljee and Newman. The session ended with a presentation by Sowa et al. of the analysis of a cover soil failure.

The symposium drew an attendance of 115, and 12 corporate displayers. A companion poster session had performance data for a reinforced soil retaining wall reported by Pack et al. and design considerations for lining of a pulp mill waste landfill by Sun et al. A technical demonstration period gave manufacturers and distributors opportunity to demonstrate design support services.

A limited number of copies of the proceedings are available from: BiTech Publishers Ltd., 903-580 Hornby Street, Vancouver, British Columbia, Canada, V6C 3B6.

reported by R.J. Fannin

A unique erosion control solution for the Kegon Falls Nikko, Japan

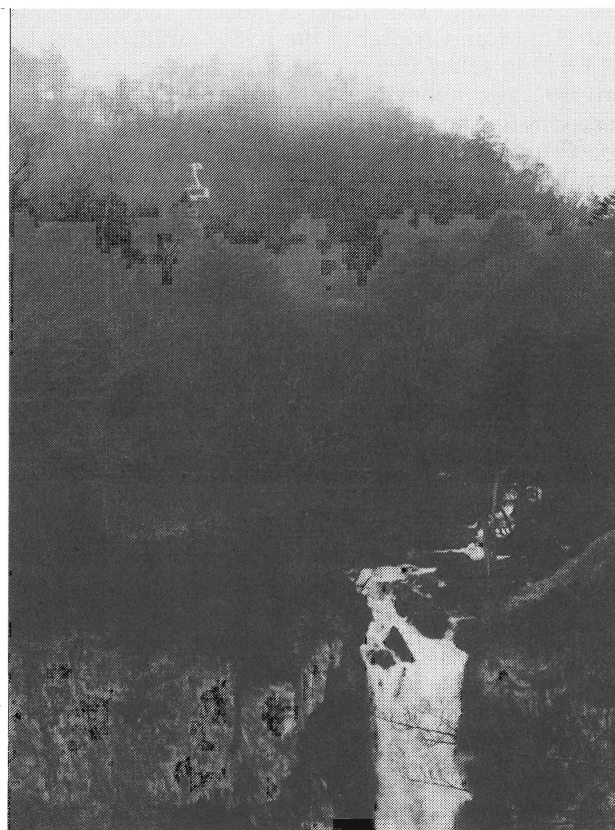
This article describes a new reinforcing technique using special anchors consisting of piano wires in a cement grout encased in high strength super-fiber bags

It has been repeatedly reported in Japan that the splendid scenery of the Kegon Falls in Nikko National Park, which attract millions of tourists every year, is being seriously impaired by erosion and persistent rock falls. Recently it was decided to apply a new technique developed jointly by Teijin, one of the largest textile manufacturers and Shingijutsu Koei, a civil engineering company located in Fukuo-ka, to reinforce the rock walls of the 100 meter high Kegon Falls. The actual work is progressing smoothly under contract to a joint venture of Mitsui Construction Co., Ltd. and Nissan Construction Co., Ltd. The project is financed by the local government of Tochigi Prefecture and will cost approximately 1.2 billion yen or roughly U.S.\$8.6 million.

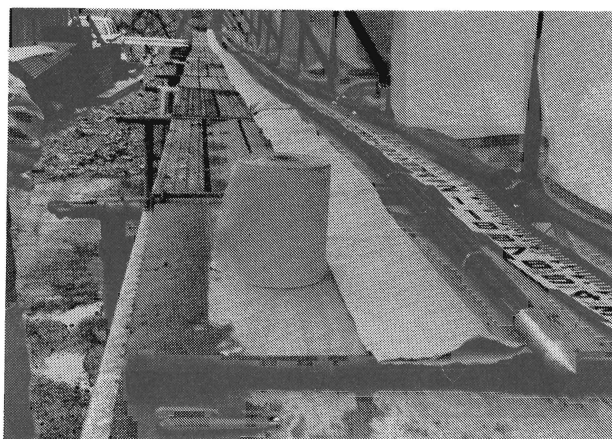
The reinforcement procedure being undertaken is as follows: First, a vertical shaft 4 meters in diameter, is bored to a depth of about 50 meters from the top of the precipice behind the waterfall. Next, a series of 0.3m diameter horizontal holes are drilled toward the cliff from the inside wall of the shaft. In order to prevent excessive amounts of pressure grout from being lost into cracks and fissures in bedrock when injected directly into these holes, Teijin and Shingijutsu developed a new anchoring system which employs a high strength super-fiber bag. The bags are 0.3 m in diameter and up to 30 m in length (see second photograph) and encase piano wires. The assembly is inserted in a horizontal hole and injected by high pressure cement grout. The bags are made from a high strength para-aramid fiberwoven geotextile known commercially as Technola which has such high tensile strength it is considered to provide the anchors with considerable additional strength. The weight of para-aramid fiber used for this work will amount to about 1.5 tons.

Eventually about 200 such horizontal holes will radiate out from the vertical shaft toward the rock walls and in each hole an anchor encased in a high strength geotextile bag will be installed and prestressed. These anchors are expected to reinforce the whole rock wall, improving the stability and durability of the magnificent Kegon Falls.

*reported by T. Akagi
Associate Editor of IGS News (Asia)*



View of the upper part of the Kegon Falls, Nikko Japan



Piano wires to be encased in high strength super-fiber bag

News of Members

Dr. Ian D. Peggs is now President of *I-Corp International* based in High Point, North Carolina, USA. I-Corp is an independent consulting company providing geosynthetic materials analytical services and facilitating access to geo-

synthetic services for those unfamiliar with the industry. Specialties are leak location services and failure analysis of geomembrane lined facilities

Annual Report of the Japan Chapter of the International Geotextile Society (JCIGS), February 1991

by

Professor T. Akagi, Liaison Secretary, JCIGS

On February 15, 1991, the JCIGS General Assembly was held in Tokyo. The following items were reported and approved by the assembly:

- 1) Membership as of December 31, 1990
 - Individual members 126
 - Student members 31
 - Corporate members 10
- 2) Publications in 1990
 - a) JCIGS Membership Directory, January
 - b) Manual for Selection of Geotextiles for Civil Engineering Projects, a report by the Committee on Selection of Geotextiles, March
 - c) Report on the Fourth International Conference on Geotextiles, The Hague, July
 - d) JCIGS Newsletter No. 10, October
 - e) Proceedings of the Fifth Geotextile Symposium, Tokyo, December
- 3) Programs sponsored by JCIGS in 1990
 - a) JCIGS General Assembly, Tokyo, February 9
 - b) Symposium on Practical Application of Geotextiles, co-sponsored by the Japanese Society of Soil Mechanics and Foundation Engineering (JSSMFE), March 20, 150 participants
 - c) Fourth International Conference on Geotextiles, The Hague; 36 JCIGS members attended the conference and participated in the JCIGS-sponsored study tour through the Netherlands, Germany and Austria, May 26-June 8
 - d) Geotextile Lecture Meeting in Tokyo; a guest lecture was given by Professor J.M. Rigo from Belgium, July 12, 60 participants
 - e) Geotextile Seminar; reports were given by participants on the Fourth International Conference, The Hague, 100 participants
 - f) Fifth Geotextile Symposium, Tokyo, December 4; 12 papers were presented and a special lecture given by Professor H. Ochiai, 120 participants
- 4) Activities of Committees
The dates of the committee meetings held are as follows:
 - a) Steering Committee: May 17, October 18 and December 4
 - b) Planning Committee: June 20, July 16, August 24, September 27, November 21 and December 20
 - c) Programs Committee: June 4, September 27, November 8 and November 19
 - d) Committee on Selection of Geotextiles: January 19 and March 20. This committee was terminated in March, 1990 after completed its mandate.
- 5) Election of JCIGS officers for 1991 (see Appendix A)
- 6) Programs proposed for 1991 (see Appendix B)

7) Treasurer's Report

In the year 1990 the revenue was 4,744,295 yen, while expenditures were 3,388,829 yen with a surplus of 1,355,466 yen. It is worth noting that it is due to the considerable energies of the officers and considerable support extended by the Japanese Society of Soil Mechanics and Foundation Engineering (JSSMFE) the account is not significantly overdrawn (as was the case in the previous year). The JCIGS has no office of its own nor a full-time employee.

Appendix A: JCIGS Officers for 1991

Chairman: Masami FUKUOKA
Advisors: Shigeru TANAKA
Toyotoshi YAMANOUCHI

Secretary General: Komei IWASAKI

Board Members:

Toshinobu AKAGI, Hitoshi ARAI, Koji KUMAGAI, Katsuyuki KUTARA, Katsuhiko MAKIUCHI, Hiroshi MIKI, Tatsuaki NISHIGATA, Masahiko SAKAGUCHI, Hideki TSUKAMOTO, Tsuneo YAMASHITA, Yoshiharu WATARI, Kazuyuki NAKAMURA, Hiroshi ABE, Masao ITOH, Shigekazu HORIYA, Takanori HIRAI, Kiyoshige NISHIBAYASHI, Yutaka NAGANO, Kenkichi MARUYAMA, Shin-ichi YAMATO and Takao NAKAYA

Treasurer: Kenkichi MARUYAMA
Auditors: Shigekazu HORIYA
Yutaka NAGANO
Secretariat: Norio YOSHIOKA
Toshiro MORITA

Appendix B: Programs Proposed for 1991

1. Publication of JCIGS Newsletters, Geotextile Information, and Proceedings of Geotextile Symposium.
2. Sponsorship of a geotextile seminar, field trip and a seminar for students.
3. Sponsorship of the Sixth Geotextile Symposium.
4. Committee Activities by Steering Committee, Planning Committee, Programs Committee and Technical Committees.
5. Participation in the IGS Council. Professor M. Fukuoka will continue to serve and attend the council meetings as an IGS council member.
6. Co-operation will be extended to geotextile-related activities by other professional societies and organizations in Japan, e.g., First International Exposition on Non-Woven Fabrics (EXPO NONWOVEN ASIA 1991) to be held at Harumi, Tokyo, May 7-8, 1991 and the International Symposium on Earth Reinforcement Practice (IS Kyushu '92) to be held in Fukuoka, November 11-13, 1992.

Any questions regarding the foregoing should be directed to Professor T. Akagi, Liaison Secretary, JCIGS at the address given on page 10.

Activities of the Southeast Asia Chapter of IGS

by

R.S. Douglas, Secretary of SEAC-IGS

The Southeast Asia Chapter (SEAC-IGS) held a dinner-cum-rapport session on 14th May 1991 with members and invited academics, during the visit of advisors to the 5th International Conference, Dr. J-P. Giroud and Mr. G. den Hoedt. Key messages delivered during the session summarized the results of meetings held over the preceding two days between the advisors and the Singapore Organizing Committee (refer to articles on page 4).

Members and guests were urged to actively lend their talent and time to the various sub-committees that will be formed in the months ahead.

The Chapter plans to likewise hold rapport sessions in other Southeast Asian countries to promote membership as well as the Conference.

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.

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.

Gundle Lining Systems, Inc.

by

Sara Barber-Rickett

19103 Gundle Road, Houston Texas 77073, U.S.A.

Gundle Lining Systems is considered a world leader in the manufacture and installation of polyethylene lining systems. The full line of products that Gundle manufactures are used for landfills, landfill caps, heap-leach mining pads, tailings dams, tunnels, wastewater ponds, tanks, canals, lagoons, and floating covers among other specialty applications. Gundle has manufactured over 90 million square metres of lining material.

Gundle also has a construction staff of over 400 personnel to install any type of lining project, and considers itself to be the largest polyethylene geomembrane installation company in the world.

Gundle manufactures a selection of products including Gundline HD in over 10m widths (high density polyethylene geomembrane), Gundline HDT (high density polyethylene textured geomembrane), Hyperlastic (very low density polyethylene geomembrane), Hyperlastic Textured (very low density polyethylene textured geomembrane), Gundnet in 4.3m widths (high density polyethylene drainage net), Fabri-Net (Gundet/geotextile Composite), Spectraline (multi-coloured geomembrane), and the newest product to the Gundle family, Gundseal (geosynthetic/bentonite composite).

Gundle sells products internationally through a worldwide network of trained distributors and installers. In the

United States, the corporate headquarters are located in Houston, Texas.

As an IGS Corporate Member since 1987, Gundle is dedicated to providing high-quality geosynthetic products and services.



Landfill project in West Palm Beach Florida using Gundle Lining Systems products

Activities of the North American Geosynthetics Society

by

Bob Holtz, President of NAGS

The North American Chapter of the IGS has been very active since our last report by Chapter Past-President Bob Koerner (see IGS News, Vol 7 No. 1 March 1990). We have had another very successful North American regional conference, we sponsored several seminars and lectures, and we are growing in membership and are financially secure. This report describes some NAGS activities during 1990-91 and our plans for the future.

1. Membership—NAGS currently has about 339 full members, twice the number we had last year, and about 70 student members. Seven Student Chapters of NAGS have been formed (we had four Chapters in 1989).

2. Geosynthetics '91— Our biennial conference held in Atlanta 25-28 February, was by all accounts a resounding success (see IGS News, Vol 7 No. 1 March 1991). Attendance approached 1400, which makes it the largest conference ever devoted exclusively to geosynthetics. The quality of the papers, sessions, and exhibition exceeded the high standards of Geosynthetics '89 in San Diego. Chair of the Organizing Committee was Dr. John Beech and Barry Christopher was chair of the Technical Committee.

A highlight of the Conference was the Awards Banquet at which more than \$60,000 for geosynthetics research was given out to research groups on behalf of the authors of the five award winning papers. See IGS News, March 1991, for additional details about the winners and their corporate sponsors.

The NAGS General Assembly also met during the Conference and, among other things, it approved some revisions to the Chapter By-laws and concluded a new 5-year management agreement with our Secretariat and Financial Manager, the TFA Management Group. The General Assembly also elected new officers for the 1991-93 biennium. They are: Dr. John Beech, President-Elect, Vice-

Presidents Robert Carroll (re-elected), Robert Denis, and Barry Christopher. John Paulson was re-elected NAGS Treasurer.

3. Seminars and Lecturers— We sponsored a successful series of Seminars on Waste Containment in Boston, Milwaukee, Seattle, Edmonton, Toronto, and Montreal during the spring of 1990. We also presented a major session on Geosynthetics in Dams at the 30 April meeting of the U.S. Committee on Large Dams in White Plains, N.Y. (see article page 5). Other specialty Seminars and Short Courses are in the planning stages, and we are actively promoting an "Educate the Educators" program to be supported in part by industry.

4. Finances— Considering our youth and limited income producing opportunities, NAGS financial position is quite strong. We now have a joint billing arrangement with the IGS so that our members receive only one invoice for dues to both NAGS and IGS.

5. NAGS News— Communication with the membership is primarily through the NAGS News page in every issue of Geotechnical Fabrics Report (8 issues/yr.). NAGS officers write brief articles on topics of concern to the membership and others interested in geosynthetics.

6. Geosynthetics '93— The next North American regional conference is being planned for Vancouver in Beautiful British Columbia 28 March to 3 April 1993. Bob Denis and Barry Christopher are Co-Chairs of the Organizing Committee and Richard Bathurst is Technical Committee Chair.

7. Other— We are also starting to plan on making a bid for the 6th International Conference (1998). We now have the mechanisms in place to enable us to do the necessary long-term planning for the Conference.

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.

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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.

Announcement of IGS Meetings, Milan 9–12 October 1991

- IGS Corporate Members Meeting: 9 October (afternoon)
- Officers of the IGS Meeting: 10 October
- IGS Council Meeting: 11–12 October

All meetings will be held at ENEL CRIS – Centro Ricerca Idraulica e Strutturale, Milan during the week preceding the Third International Landfill Symposium (Sardinia 91)

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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**.

Calendar of Events

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

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

GEO-FILTERS '92 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: 31 July 1991

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

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

Kyushu, Japan 11-13 November 1992

Abstracts: 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

Geosynthetics '93

Vancouver, British Columbia, Canada
30 March - 1 April 1993

Abstracts: 5 November 1991

Contact: Secretary General NAGS
345 Cedar St., Suite 800
St. Paul, MN 55101
U.S.A.

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 or wish the support 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 (1984)
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)
Geotextiles (M) Sdn Berhad - Malaysia (1991)
Gundle Lining Systems, Inc. - U.S.A. (1988)
Hoechst Celanese Corporation - U.S.A. (1984)
Huesker Synthetic GmbH and Co.-German (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

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

A check is enclosed

A Money Order is enclosed

SIGNATURE _____

DATE _____

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

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