

THE ROLE OF GROUND FORUM IN SUPPORTING AND REPRESENTING THE GEOSYNTHETICS COMMUNITY

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Abstract: The UK Chapter of the International Geosynthetics Society is a member of the Ground Forum, the 'umbrella' body for the ground engineering industry. The significance of the contribution of geosynthetics to geotechnical engineering and the challenges ahead for the geosynthetics community are summarised in order to set in context the role of the Ground Forum in supporting the ground engineering sector in general, and the geosynthetics community in particular, and lobbying government and others on issues of concern to the sector.

Keywords: construction, geotechnical engineering, innovative-geosynthetics.

THE CONTRIBUTION OF, AND CHALLENGES FOR, GEOSYNTHETICS

It is often said, inappropriately, that geotechnics has not changed significantly in recent years. That suggestion is erroneous on several counts, one of the most compelling being the substantial advances that the introduction of geosynthetics has brought to the practice of geotechnical engineering.

JP Giroud, in his paper 'The Geosynthetics Discipline: Achievements and Challenges' (2008, in prep) records that over 20 billion square metres of geosynthetics have been used in several million projects and argues cogently that geosynthetics "have been the most important innovation in geotechnical engineering in the second half of the 20th century".

The diversity of uses for modern geosynthetics is illustrated by Giroud's classification; he identified four "classical" functions:

- fluid transmission
- filtration
- separation
- reinforcement

and six additional functions:

- as fluid barriers
- in road pavements against reflective cracking
- as cushions adjacent to geomembranes
- as modifiers of friction between two materials (increasing or decreasing)
- erosion control (geomats)
- confining soil (geocells and geocontainers).

Slightly more controversially, Giroud suggests that it is now "not possible to practice geotechnical engineering without using geosynthetics." Whether or not one agrees with this suggestion there is no doubt that geosynthetics have made a huge contribution to geotechnical engineering.

Looking ahead, Giroud identifies three main challenges for the geosynthetics community:












- Provision of education courses on geosynthetics including making civil engineers more aware of the possibilities offered by geosynthetics
- Specific technical challenges in developing new applications
- General technical challenges: durability and developing design mechanisms for "subtle" mechanisms.

It is for others to consider the technical challenges. The remainder of this paper outlines the Ground Forum's role in supporting the geosynthetics community and considers the issue of education which, together with the current skills shortage, is one of the Ground Forum's main areas of activity.

THE GROUND FORUM

So what does the Ground Forum do? Ground Forum was founded in 1993 with its primary role being to facilitate the exchange of information and the co-ordination of activities between the chairmen of its member organisations. The membership (Table 1) comprises the leading trade associations and learned societies who collectively represent all aspects of ground engineering including geoenvironmental services.

Table 1. Ground Forum members:

THE GROUND FORUM			
Trade Associations		Learned Societies	
Association of Geotechnical & Geoenvironmental Specialists (AGS)		British Geotechnical Association (BGA)	
British Drilling Association (BDA)		British Tunnelling Society (BTS)	
Federation of Piling Specialists (FPS)		Engineering Group of the Geological Society of London (EGGS)	
Ground Source Heat Pump Association (GSHPA)		Institute of Materials, Minerals and Mining (IoM ³)	
Pipe Jacking Association (PJA)		International Geosynthetics Society, UK Chapter (IGS)	

Ground Forum’s second major role is campaigning on behalf of the ground engineering sector on issues of concern. There are more than 300 organisations representing the construction industry so, understandably, government prefers to deal with ‘umbrella’ bodies; the Ground Forum is the umbrella body for the ground engineering industry. Through membership of the Construction Industry Council (CIC) and, more directly, through the Parliamentary and Scientific Committee (P&SC) Ground Forum is able to lobby ministers, other MPs and members of the Lords. Ground Forum’s position in the industry is illustrated in Figure 1.

The UK Construction Industry

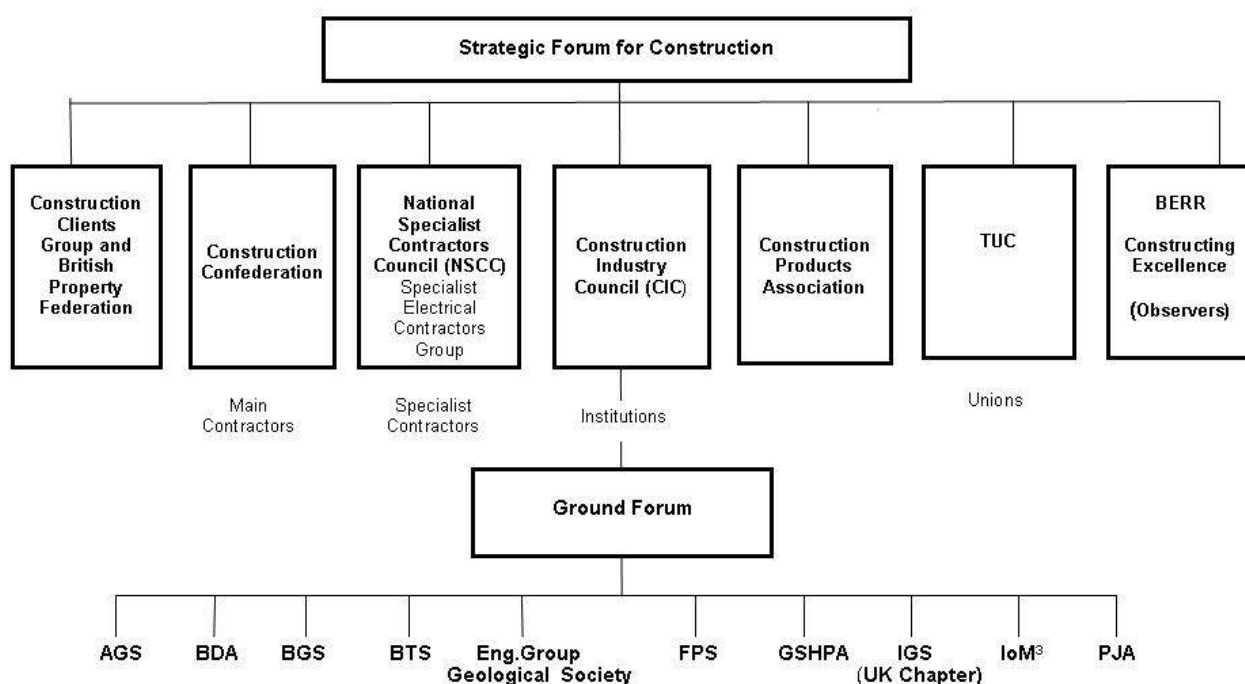


Figure 1. Ground Forum’s position amongst bodies representing the UK construction industry

Recent issues tackled by Ground Forum include:

- Inclusion of 16 geotechnical disciplines on the Home Office's Shortage Occupations List
- Successfully lobbying the DTI on behalf of CIC to remove the 'country of origin' principle from the EU Services Directive (which would have allowed nationals from other EU countries to work in the UK under their laws, instead of UK laws).
- Introduction of a statutory requirement for geotechnical ground investigation for all building projects: recommendations included in the CIC's report to the Office of the Deputy Prime Minister (ODPM) on regulatory reform and, in 2007, in both the CIC's and Ground Forum's responses to the Draft Strategy for Sustainable Construction.
- Contributing to the Cabinet Office's review of the Building Regulations
- Lobbying HM Revenue & Customs (HMRC) regarding their inappropriate application of the Aggregates Levy to chalk arisings from a utilities tunnel.

The UK Chapter of the International Geosynthetics Society is a key contributor to the Ground Forum's activities, thereby influencing policy and gaining broader representation for its membership. All members of Ground Forum are encouraged to raise issues of concern to their members in order that, when appropriate, coordinated action can be taken on behalf of the whole ground engineering sector. The current concern over the Aggregates Levy is a good example of this; the issue was raised initially by the Pipe Jacking Association, following which Ground Forum encouraged the British Tunnelling Society and, through CIC, the Construction Clients' Group to get involved in order to obtain the strongest possible negotiating position. This latter aspect is considered further below.

THE CONSTRUCTION INDUSTRY SETTING

In the heat of our daily working lives it is easy to forget the significance of the construction industry as a whole to the UK and EU economies. Construction contributes 10% of EU GDP; with 11.8 million people directly employed (7% of total) and a total of 26 million dependent on the construction sector (28%). The ground engineering sector plays a pivotal role in construction, in particular because, almost uniquely, ground engineering skills are required for almost every building and construction project.

EDUCATION AND SKILLS

We are fortunate that the construction industry including the ground engineering sector is currently very busy. However, the buoyant market does bring with it certain challenges, and masks the continuing need for the industry to raise its game. The most pressing current issues for the sector, and hence for Ground Forum, are the skills shortage and the continuing inadequate appreciation of the value of ground engineering to the successful completion of civil engineering and building projects. Neither of these issues are new. However, the drivers behind them are changing with the increasing focus on meeting the demands of both society and government for waste minimization, energy conservation and sustainable development. The industry must therefore adapt its responses to these challenges. The geosynthetics community has already shown that it is at the forefront of providing innovative methods which reduce our consumption of energy and materials. Examples of well established sustainable applications of geosynthetics include:

- Geotextile separators replacing significant quantities of aggregate in graded filters
- Geogrids enabling much reduced thicknesses of pavement sub-base materials
- Reinforced soil structures replacing concrete/masonry retaining walls.

Looking ahead, I have every confidence that new sustainable geosynthetics applications will continue to be developed.

The new drivers are also generating new sources of work for the industry, especially the drilling and piling contractors, and will provide fresh opportunities for the geosynthetics community:

- brownfield sites need more exploratory holes than greenfield sites
- wind farms and marine current turbines
- installation of pipework and energy piles for extraction of low level thermal energy by heat pumps.

The inadequate appreciation of the value of ground engineering has been widely aired within the ground engineering community, one example of which is Giroud's identification (op cit) of the need for further education of civil engineers to raise their awareness of the possibilities offered by geosynthetics. There remains much to be done to engage the non-engineering professionals who commission ground-related projects. All too often we are still told by clients' agents such as quantity surveyors and project managers that they cannot justify awarding contracts other than on lowest price. We have to sell the message that they should be considering best value, rather than lowest price. In the past, the message has been somewhat negative, emphasising what can go wrong if the site investigation isn't adequate; we must turn this round to focus on the benefits of getting the ground engineering right, namely that projects are much more likely to finish on time and within budget if adequate time and resources are made available for the ground engineering. Similarly, in order to promote the use of geosynthetics the positive must be emphasised, in

particular, it is suggested, the sustainable benefits of using geosynthetics. Case histories of successful projects are the best way of selling these messages.

On the skills shortage issue Ground Forum had a notable successes in 2005 and 2007 when it negotiated the inclusion of geotechnical engineers and 15 associated disciplines onto the Home Office's 'Shortage Occupations List'. This makes it much easier for employers to obtain work permits for non-EU nationals whom they wish to employ in any of the identified disciplines.

Efforts to persuade the government to reinstate adequate levels of funding of research and training, especially for the Masters Degree courses, have been less successful. Funding of universities is set to become a much bigger issue when the Bologna protocol comes into force in 2010, because most UK degrees do not comply with the protocol's requirements, so UK engineers and geologists may become ineligible to work in Europe. Ground Forum will continue to lobby government on the funding issues at every opportunity.

The skills shortage issue also affects the specialist construction trades. There is currently unprecedented demand for drilling crews owing to some substantial ground investigations and the (welcome) increased workload associated with ground source heat pumps. These projects will have a significant impact on the capacity of the site investigation industry and will exacerbate the skills shortage challenge. There is no magic wand to solve this, so we must make the industry as attractive as possible to aid recruitment and retention. For operatives, we must ensure that the content of NVQ courses makes them genuinely useful and that we continue to improve health and safety on site.

A registration scheme for ground engineers is currently being developed by the British Geotechnical Association on behalf of Ground Forum. Chartered engineers often complain about the lack of status attached to the term 'engineer', because the word is used too widely. This registration scheme will establish the competence of candidates in their specific disciplines, and will thereby raise their status and, hopefully, earning potential. Ground Forum has steered the scheme so as to ensure that it is fit for purpose and will actively promote its adoption by major construction clients. Educating them as to the benefits of supporting the scheme will provide a further opportunity for a constructive dialogue with clients.

In addition to all of the above, Ground Forum will continue to monitor emerging issues and will, as necessary, consult and coordinate appropriate actions on behalf of the ground engineering sector.

CONCLUSIONS

The introduction and enormous growth in the use of geosynthetics over the past 30+ years is recognized as one of the most significant enhancements in ground engineering practice during that period. The contribution of the International Geosynthetics Society UK Chapter to the Ground Forum's activities has enabled the geosynthetics community to raise issues within the wider community, with key issues of concern being:

- the need for continuing education of the other construction professionals of the value of ground engineering in general, and of the benefits of using geosynthetics in particular
- the current skills shortage.

The Ground Forum will continue to support its members and will represent the ground engineering sector to government and the wider construction industry on all issues of concern to its members.

Acknowledgements: The author is grateful to Chris Jenner and Mrs Dianne Jennings for reviewing the manuscript.

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REFERENCES

Giroud, J.P. 2008. The Geosynthetics Discipline: Achievements and Challenges. Paper presented at The First Pan American Geosynthetics Conference & Exhibition, 2-5 March 2008, Cancun, Mexico.