The new Geo-Engineers without Borders Committee (GeoWB)

Prof. Pierre Delage - Leader of GeoWB Project

The GeoWB new Board Level Committee started in May 2022 from an initiative that President Marc Ballouz launched, with the aim to clearly show that ISSMGE was keen to serve the Society by sending experienced geo-engineers to assist countries affected by geo-disasters, show support to fellow colleagues and prove that ISSMGE is one big family. The responsibility of this Committee was given to Pierre Delage, with the help of Daniela Pollak, Board Member. Presently, the GeoWB committee is made up of **14 members**, including some internationally well-known experts. The committee is to be completed to a limited number to ensure motivation and efficiency. The GeoWB idea is to use the society's worldwide resources, scientific and technical network, with 37 Technical Committees (TCs) and expert members from 90 different countries devoted to geotechnical engineering and geotechnical risk analysis and reduction, to assist countries affected by geo-disasters (including, but not limited to earthquakes, landslides, floods, failure of dykes, dams and tailing dams, collapse of geotechnical structures, etc...).

Prior to starting its activities, GeoWB has made contacts with some organisations like GEER (Geotechnical Extreme Events Reconnaissance), a National Science Foundation supported organisation in the US, that is aimed at "turning disasters into knowledge". GEER is chaired by Prof. D. Frost, Chair of the TC302 (Forensic Engineering) and their experience is most relevant for GeoWB.

GeoWB plans first to establish reliable local contacts in countries affected by geo-disasters through the local ISSMGE Member Society, the regional Vice-President and/or any other direct contacts, that may be particularly useful in the absence of any Member Society (including contacts from the GeoWorld database).

February 6th 2023 earthquake in Turkey

Once local contacts are made and have provided useful information with respect to the local context, to safety issues and to how geo-disasters are locally managed by relevant organisations (when existing), GeoWB will propose a small team of 2 - 3 volunteering specialist geo-engineers to send to the country, so as to deliver a short report (3 pages or more).

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To ensure the team's safety and not hinder rescue operations, it seems appropriate to schedule the GeoWB missions once post-disaster recovery operations commence.

Among other things, the report would deal with the description of the geo-disaster, of the resulting damages, offer a preliminary explanation of how it was triggered and propose possible remediation techniques for future risk reduction. Travel and accommodation expenses will be paid by the ISSMGE and the selection of geo-engineers for missions will be based on relevant experience, proximity, and preferably knowledge of local language and customs.

To strengthen its presence in the international context, GeoWB has made overtures to be integrated within the Sendai Framework Voluntary Commitment of the United Nation Office for Disaster Risk Reduction (UNDRR), which may support the GeoWB initiative, in terms of safety, financial, professional recognition and institutional aspects.

To start building a database of volunteering geo-engineers ready for GeoWB missions, the ISSMGE network has recently mobilised all Member Societies through a survey sent on 6 February 2024, with an answer required for the end of April 2024. This survey, presented in the Annex, is aimed at getting feedback from Member Societies and ISSMGE members on the GeoWB initiative, either to support it (providing support and volunteering geo-engineers) or to take advantage of it, when affected by a geo-disaster.

GeoWB has developed a website (**https://www.issmge.org/committees/geo-engineers-without-borders**) explaining its aims in more details and providing some reports prepared by GeoWB members on earthquakes (Turkey, 6th February 2023, Japan, 1st January 2024), heavy rains and landslides (Brazil 2008), heavy rains and floods (Greece 5 – 7 September 2023).

Heavy rains and landslide in tropical residual soil, Brazil (2008).

First lessons learned

Particular attention has been paid and contacts made with respect to recent geo-disasters occurring in Italy (Emilia Romagna heavy rains and landslides, May 2023), Greece (heavy rains and floods from Storm Daniel in Thessaly, 5 – 7 September 2023), Morocco (Al Haouz earthquake, 8 September 2023) and Libya (Dam failures in Derna, 10 – 11 September, from Storm Daniel as well). The lessons learned from these exchanges confirmed the need for having strong and reliable local contacts to ensure the efficiency and safety of GeoWB missions, with a good integration in the local context, essential for logistical issues (including exchanging in the local language with relevant stakeholders). It appeared that finding relevant contacts prior to proposing a mission can be a lengthy process, partly due to local inertia and people being tied up in emergency responses. Unsurprisingly, we realised through our contact who proposed our help in Italy, that countries with well-established Universities and relevant organisations in charge of disaster management are able to manage things by themselves.

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For all these reasons, in spite of a strong desire to start a first GeoWB mission with some selected geo-engineers, it was not possible to do so in the recent geo-disasters mentioned above. In this regard, it is most probable that the forthcoming UNDRR integration will help significantly.

Damage after Storm Daniel, Greece.

In the case of Libya, the expert initially selected by GeoWB finally went there with the support of the International Commission on Large Dams (ICOLD) and of the UNDRR committee. In the case of the Morocco Al Haouz earthquake, relevant local contacts have been made (after some period of time) and GeoWB is planning to prepare a joint report with local experts. Whether or not a mission is necessary will be discussed.

Conclusion

Unsurprisingly, the good intention prevailing in the GeoWB initiative is not enough to get fast results in terms of assisting countries affected by geo-disasters through missions and reports by experienced geo-engineers. In conjunction with the lessons learnt from some recent geo-disasters over the world, it appears that developing reliable local contacts prior to proposing and setting up a mission was essential to ensuring its safety and efficiency. The next steps in the GeoWB activities will result from the feedback from the survey recently sent to Member Societies. Undoubtedly, the support that is hoped for through the UNDRR Sendai Voluntary Commitments will also help progressing forward, given that the ISSMGE's strong technical and scientifical network should undoubtedly be of significant interest to this international organisation. GeoWB is counting on the support of each one of us and will pursue this initiative to hopefully have it operating in full power within the coming year.