

Minutes of the First Meeting of EAEE & ESC Joint TG3 on "Seismic Risk and Earthquake Scenarios"

June 26-27 1995 Wien, Austria

Participants:

A.Ansal (Sec-Gen of EAEE) Turkey ; M.Dolce (EAEE Co-Coor.) Italy; V.Schenk (ESC Co-Coor.) Czech Republic , M.Erdik (EAEE Co-Conv.) Turkey; P.Burton (ESC member) United Kingdom; A.Kappos (EAEE member) United Kingdom; K.Makropoulos (ESC member) Greece; H.Sandi (EAEE member) Romania; G.Zuccaro (EAEE member) Italy

Discussions

Ansal introduced the participants to the activities of EAEE and to the organisation and scope of the new Task Groups. In particular he pointed out that the organisation of TG's will be more flexible than the organisation of EAEE WG's, in order to create a link between subgroups or working groups which deal with single problem relevant to the same topic, which operate in a limited region or which belong to different organisation. This is the case of TG3, whose membership comes from EAEE and ESC (European Seismological Commission). He also said that the main scope of TG's is to exchange data and that a special session of the European Conference as well as a special volume of the proceedings will be devoted to the activities of TG's. Moreover the bulletin of the Association, which is published every six months, can report some abstracts and research information on the activities of TG's. Another possible tool for information exchange could be a data bank in INTERNET.

Dolce pointed out that an important step of TG3 activities is the harmonisation of the different viewpoints and languages of engineers and seismologists, in order to avoid misunderstandings and to reach the common scope which is that of evaluating seismic risk. Regarding the future activity of TG3, he emphasised the need to have clear objectives. Possible activities could regard original researches, co-ordination of on-going researches, or just the organisation of meetings to exchange information, establish a common language, reach a consensus on procedures to evaluate hazard, vulnerability, risk and earthquake scenarios. In any case, TG3 must be supported with adequate funds, according to the type of activities that will be carried out.

Schenk agreed about the need of establishing a common language between seismologists and engineers. He also spoke of some open questions that could be dealt with within the framework of TG3. In particular he highlighted the need of studying the hazard of special sites and/or regions, where similar methods but different details can lead to interestingly different results. He also emphasised the need of studying the influence of geological, geophysical and local geotechnical characteristics and the ground motion characteristics. He finally pointed out that the activities should be based mainly on joint meeting and that some outcome could be of interest also for Eurocode 8.

Ansal and Makropoulos pointed out that speciality meetings, joint meetings and workshops could be organised, with the participation of no more than 20-25 people. In particular during the ESC conferences joint meetings could be organised. Moreover the meeting of specific CE projects could be enlarged to the TG3 members.

Zuccaro suggested the possibility of getting funds from EBRD (European Bank for Reconstruction and Development). Regarding the future activities of TG3, he emphasised the need of harmonising Data Bases on vulnerability and hazard and making them available, collecting the results of risk analyses made all over Europe (complete risk analyses are very rare until now), comparing methodologies and results, proposing a GIS model for seismic risk studies.

Sandi pointed out that TG3, WG10 ("Characterisation of Ground Motion and Seismic Condition") and WG1 ("Calibration and Harmonisation of Seismic Codes") have some common topics and that synergy's can result from a co-ordination of their activities.

Ansal confirmed that many EAEE-WG's elaborate information that are useful for TG3. Information exchanges are therefore needed.

Kappos emphasised the need of comparing information on Damage Probability Matrices (DPM's) and the available DPM's among them.

Dolce emphasised the need of enlarging the range of activities of TG3 to problems regarding lifelines, exposure, casualties, urban risk, in order to get comprehensive risk assessment and earthquake scenarios.

Ansal suggested the following points to make TG3 to function. The output of TG3 activities should be a Seismic Risk manual, where well established procedure should be explained. Certain topics should be selected and workshops on single topics should be organised. TG's should be organisational committee: external experts from various countries can be invited to participate to workshops.

Sandi suggested to concentrate the attention on Vulnerability Assessment and to Earthquake Scenarios. There is still a lot to do for vulnerability assessment, while earthquake scenarios are valuable operating tool for complex systems (urban systems, multicomponent systems), for which hazard is assumed as known condition and an accurate study of elements at risk is needed. Subsequently he gave the following suggestions on desirable TG3 activities:

- i. define categories of complex systems for which the development of Earthquake Scenarios (ES) is intended,
- ii. develop lists of categories of Elements at Risk (ER) involved and develop an arborescent classification of them,
- iii. set up a program of developing Vulnerability data bases for various categories of ER's,
- iv. develop rigorous approaches on how to set up ES's in order to dispose of a rational

framework

- v. develop pragmatic approaches on how to set up ES's such as to keep things feasible
- vi. draft state of the art on ES developments
- vii. come up with first conclusion on where risk can be dealt with individually, where ES are of major importance.

Conclusions

Afterwards the discussion was mainly devoted to the organisation of meetings during next year. At the end of the discussion the four meetings listed in the table were planned for 1996.

Two of these meetings will be held during international conferences. The other two meetings will cover two days, preferably Friday afternoon and Saturday all day, so that travelling costs can be considerably reduced. During the first day a workshop open to external experts will be held, while the second day will be strictly devoted to the activity of TG3, with the participation of 12-15 members of TG3. About 10-12 vulnerability experts and 3-5 hazard experts should participate to the meeting of Rome, while 10-12 hazard experts and 3-5 vulnerability experts should participate to the meeting of Athens. During the discussion it was suggested to contact Barbat from Spain, Spence from UK, Georgescu from Romania, a researcher from Switzerland, C.Rojan, as an external expert, from USA. Suggestions and addresses of possible participants should be sent to Dolce as soon as possible. Another point which was debated regarded the possibility of funding the activities of TG3, especially for what concerns:

making a Data Bank; preparing manuals; making a State of the art; covering meeting expenses.

The possibility of making a Thematic Network within some CE research program, according to the suggestion of the President was considered. The only program that considered Thematic Network, whose deadline is not too far (end of September), was the "Standards, Measurements and Testing" Program. This is not the most suitable program for the activities of TG3 and a big effort is required to justify the application to it. In any case the coordinators would have investigated any possibility to get funds from EU. According to the outcomes of querying the EU offices, a draft proposal should be ready by the end of July. Some important points relevant to vulnerability, hazard and earthquake scenario analysis procedures were discussed during the meeting. The following points were especially dealt with:

- a. The peculiarity of vulnerability assessment of historical centres
- b. The need of considering all possible sources of information (damage data, mechanical models output, expertise, etc.) and of setting up suitable methods to combine all the available data

c. The usefulness of theoretical vulnerability analyses

d. The importance of detailing in R/C constructions, according to past earthquake experience

e. The need of establishing the scope of an earthquake scenario to select the earthquake characteristics

f. The importance of a good characterisation of the ground motion taking into account all the factors that affect it.

Prof. Mauro Dolce

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