The existing estimation techniques of area seismicity are imperfect and still remain unreliable. At present, there are many different approaches to assessing the seismic risk criteria, but, as a rule, the seismic risk estimates are based on the area seismic (earthquake) history. One may compare seismic processes with a disturbing fire of the enemy artillery aiming not at any specific target but at the whole area. The military know quite well that the only thing they can do to stop such a disturbing fire is to neutralize the enemy’s fire weapons, but, in so far it is impossible in our situation, we may just hope not to be hit. Certain defensive measures and safety precautions are to be taken to rescue people and to protect them at least from shell-splinters if not from a direct hit. But, however, till people still remain unable to govern the seismic processes, any assessment of seismic risks will be nothing but just a choice between a low earthquake probability and a high probability of a useless money waste (as a result of high-cost defensive measures).

This situation is typical of seismic areas, especially after the catastrophic earthquake events have occurred there. Builders are seismologists face a challenge of protecting the man’s environment against earthquakes. Today, the opportunity of earthquake prediction is discussed, although, as the long-term meteorological studies show, any event prediction technique is low reliable even for weather processes, which, to their advantage, can be both mathematically calculated and physically experimented. Unlike weather processes, seismic processes lack any mathematical apparatus, and, moreover, they still lack a well-grounded physical concept of their mechanism. No wonder, the earthquake prediction has been the business of many «magicians», «sorcerers» and, of course, the search-and-rescue service. Since the 1950s, the principle of seismic areas (zones) has been used in construction industry; the Academy of Sciences has proposed a schematic map of Russia, the territory of which is shown as seismic areas where different earthquake events may take place during the next 50 years.

People may take different earthquake-defensive measures, which, however, may not be necessarily high-efficient but are always high-cost. Besides this, such seismic protective measures and precautions cause some restrictions in using construction methods and techniques and may even affect construction projects. Since the principle of seismic areas came into effect, builders are interested in classification of a construction area as having a minor seismic danger, in order to make the construction costs lower, especially if it is a major construction project. In practice, the expected earthquake events often do not occur and high-cost protective structures usually remain out of use.

Establishment of area seismic degrees (area seismic danger) was not errorless. Some major catastrophic events took place in areas supposed to be relatively safe. Thus, the major Spitak Earthquake (1988) of 10 degrees occurred in the 7-degree area and caused 25000 deaths. A few years later, there was the terrible Neftegorsk Earthquake on Sakhalin, which also caused many deaths. After these catastrophic events any argument in favor of re-assessing a seismic danger ceased.

There are two seismic charts: CP-78 (made before earthquakes in Leninakan and Neftegorsk) and OCP-97 made after these catastrophic events. The basis of OCP-97 chart consisting of the map of epicenters and geophysical anomalies generally remains the same, but the area seismicity is in many cases 1 degree higher, and, as a result, the seismic protection costs are to become higher as much as twice. «The OCP-97 Maps indicate a greater seismic danger in the territory of Russia than it was suggested before; these maps have been used as a factual basis by the Federal Government to approve the federal program «Seismic Safety in Russia (2002-2010)». Lack of such seismic safety programs of federal significance in the former USSR and then in Russia has resulted in that the half of population living in seismically dangerous areas (tens millions people) have their houses with seismic resistance deficiency» [Ulomov, 2003]. We
have quoted these proud words of the author of OCP-97 to demonstrate the policy of seismologists, who do not put forward any new ideas but try to avoid any responsibility for their possible mistakes («we warned you!»).

The authors of this seismic map threaten Magadan with a catastrophe, that is 8 - 9 degree earthquakes during the next 50 years (this city, however, doesn’t have any earthquake-caused losses and damages reported from its history). The standard contingency assessment of this area seismicity is 1 degree higher, and we regard it as the demonstration of the personal subjective attitude affecting this very serious problem, whereas the true seismic information becomes less important. According to the authors of the seismic map (1997), the residents of Magadan live in unsafe houses; they should live in palm huts, which are highly safe, or in reinforced caponiers of coastal artillery. But, however, the population can’t be safe either even if new improved seismic-protective technologies are used. Such technologies just assume some greater building stability in conditions of a significant earthquake. Such anti-seismic structures as reinforcing belts become older and depreciate like the building itself, and, in any case, their efficiency is tested only at the very beginning. Seismic defensive structures and facilities have never been tested for their efficiency in the territory of Magadan Region. New standard seismic defensive measures insistently recommended by the authors of the OCP-97 seismic map are not likely to be used in the construction practice in Magadan Region (the severity of Russian laws is mitigated by their non-observance), but they will evidently create much mess and disorder in design plan and specification documents.

The principle of seismic areas was developed in Russia, where it has a status of a construction law. However, in many foreign countries, the seismic risk is assessed and recommendations made just under a certain construction project. Probably, we should also follow this practice and refuse the federal-level made decisions; rather, we should make area-specific seismic risk assessments using the OCP maps not as the recommended standards but just as an illustration.

Reference

2. Sharafutdinov V.M., Mishin S.V., Sharafutdinova L.V. (SVKNII DVO RAN, Magadan).