	<b>COOMET Informational Material</b>	<b>COOMET I/GM/4/2005</b>
	<b>Analysis of the problem of introduction of the “Guide to the expression of Uncertainty in Measurement” in COOMET state- members</b>	
<i>Approved at the 3<sup>rd</sup> meeting of Technical Committee TC 1.1 “General Metrology” Kharkov, Ukraine, 25 of May 2005</i> <i>Approved at the 15<sup>th</sup> COOMET Committee Meeting (Vilnius, Lithuania, September 8 –9, 2005)</i>		

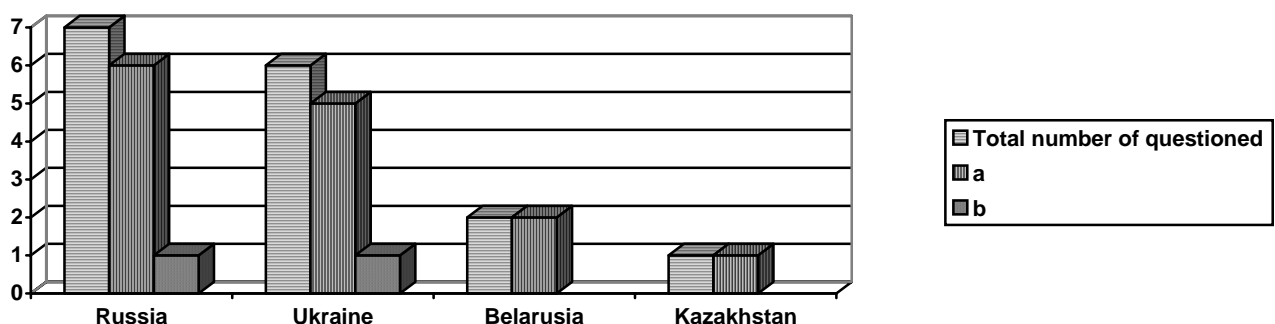
The present informational material has been prepared within COOMET project 279/RU/07 «Analysis of the Results of introduction of the “Guide to the Expression of Uncertainty in Measurement” in COOMET state-members». This COOMET project involves a questionnaire aiming at finding out the basic questions, which arise applying the GUM. The questionnaire was carried out among members of TC 1.1 COOMET “General metrology” and participants of International Seminar “Mathematical Methods as a Support in Providing the Quality and Mutual Recognition of Measurement Results” (28-30 June, 2004, D.I.Mendeleev Institute for Metrology, St.Petersburg, Russia). Twenty-three participants from four COOMET state-members (viz Russia, Belarusia, Ukraine and Kazakhstan) were questioned. Participants from Russia and Ukraine showed most activity. The transition to new concept is rather complicated for them because of an advanced development of measurement error concept in these countries. This fact also clears the essential divergence of opinions demonstrated by specialists from Russia and Ukraine.

The questionnaire has shown generally that concept of uncertainty is used widely when evaluating accuracy of standards. As regards to use of uncertainty in determination of characteristics of measurement procedures and measuring instruments, here remains numerous unclarified questions. Throughout the work on uncertainty introduction in COOMET state-members the COOMET project “Possibility of joint use of “measurement error” and “measurement uncertainty” concepts in different metrological tasks” is proposed.

Results of the questionnaire are cited below.

1. Whether or not an uncertainty is used in your country in evaluation of accuracy of measurement results?

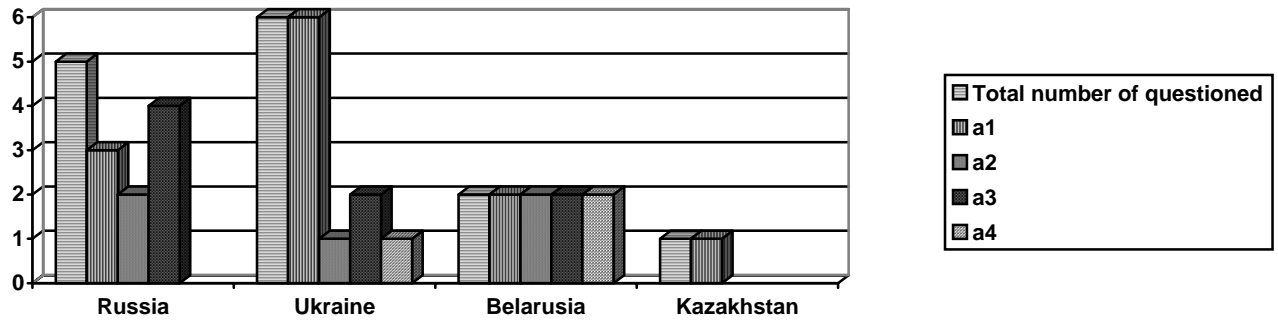
- a) Yes
- b) No



2. Who and in what cases uses an uncertainty in your country?

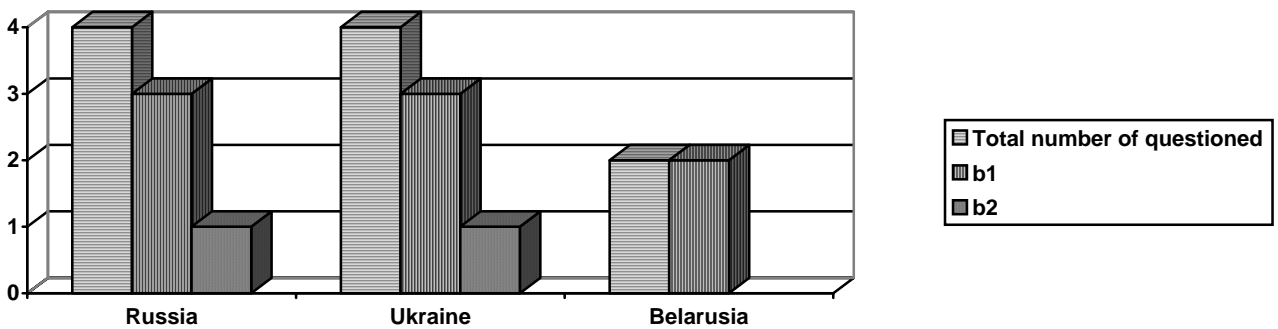
a) National metrology institutes (NMIs) in determination of accuracy of

- a1) Measurement standards
- a2) Measuring instruments
- a3) Methods for carrying out measurements
- a4) Others



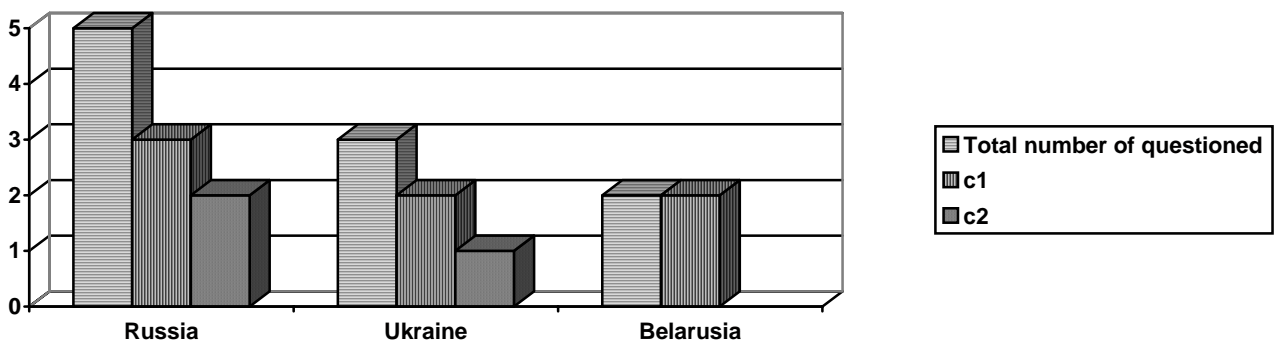
b) Calibration laboratories

- b1) Yes
- b2) No



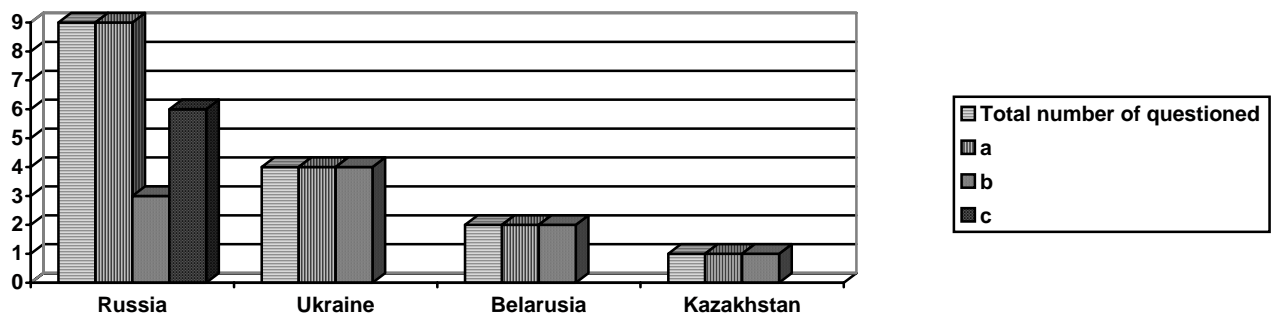
c) Testing laboratories

- c1) Yes
- c2) No



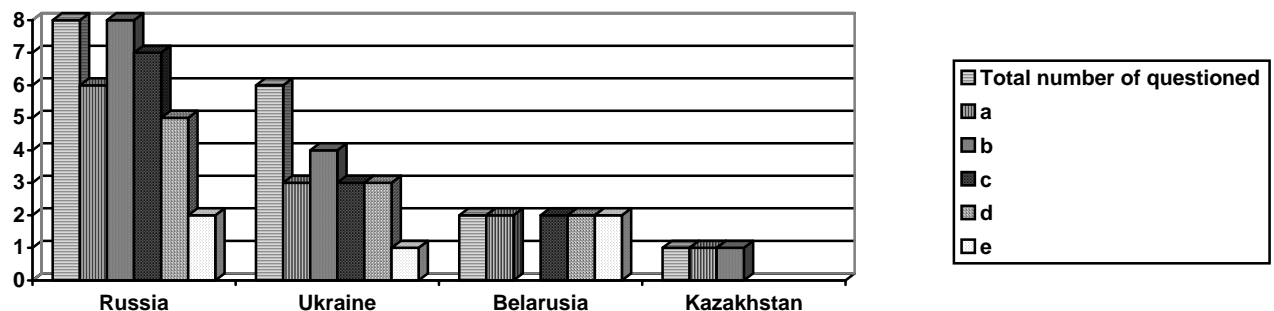
3. Which normative documents do you usually use in calculation of uncertainty of measurement?

- a) International
- b) Regional
- c) National



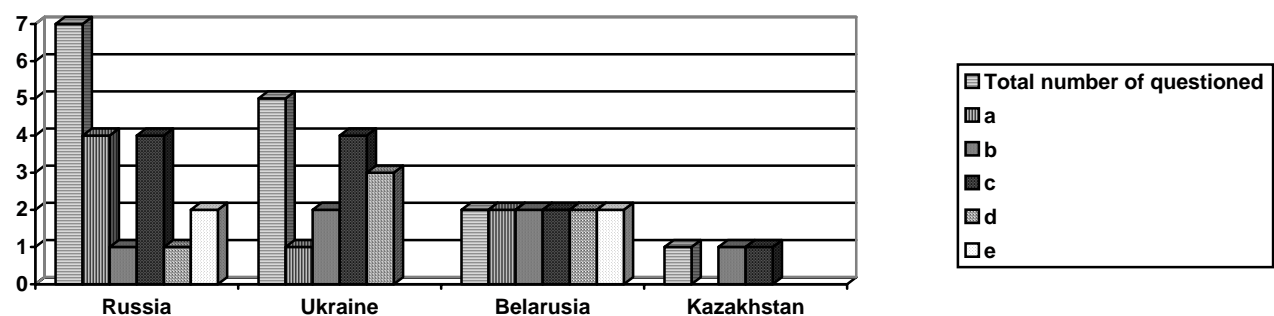
4. Whether or not it is, in your opinion, necessary to develop additional (supplementary) documents on calculation of an uncertainty of measurement in:

- a) Expression of accuracy of measurement standards
- b) Certification of procedures for carrying out measurements
- c) Calibration of measuring instruments
- d) Verification of measuring instruments
- e) Other cases



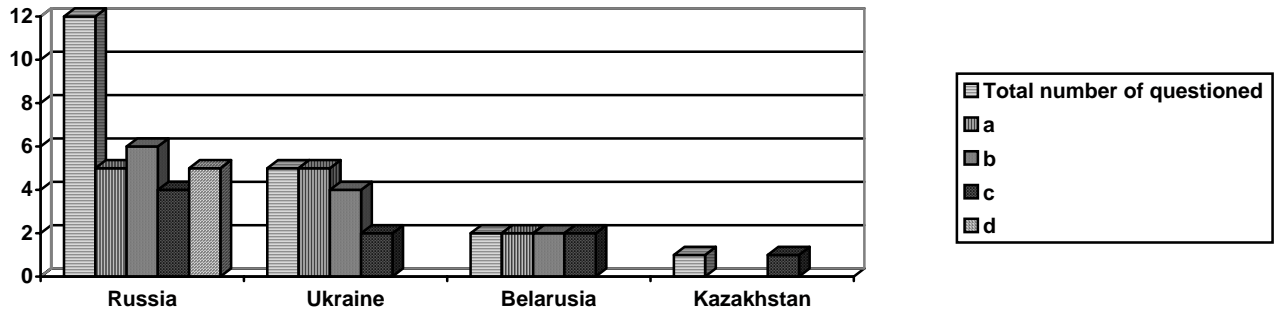
5. Do you have problems resulting from application of the GUM? Of what character? Whether they refer to:

- a) Choice of a distribution law of input quantities
- b) Evaluation of an effective number of degrees of freedom
- c) Evaluation of correlation of input quantities
- d) Propagation to nonlinear models
- e) Some other cases



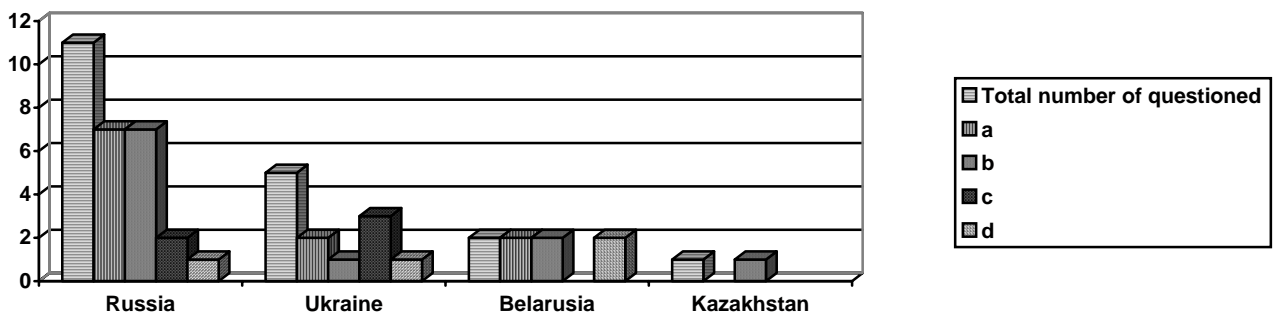
6. What is, in your opinion, a more effective action in introduction of the GUM? Whether it will be:

- Development of additional normative documents
- Holding regular training seminars
- Preparation of a manual on calculation of an uncertainty of measurement
- Some other cases



7. What problems will be, in your opinion, of high priority in further development of the conception “uncertainty of measurement”? Whether they refer to:

- Conception, methodological, terminological ones
- Scientific-and-methodological
- Development “in width”, that is, development of more complex models (among them nonlinear, vector ones), and a wider set of laws of distribution of errors
- Some other problems



8\*. What is your opinion on further introduction of an uncertainty of measurements into the existing base of normative documents? What is the way in which it will be possible to avoid a “double standard” in evaluation of accuracy of measurements? Does it refer to:

- Preservation of an error of measurements, applications of an uncertainty of measurements as a quantitative measure of error or accuracy (just as characteristics of an error) under the condition of consistency of formulae needed to get estimates.
- Simultaneous application of an “error” and an “uncertainty” of measurements with a demarcation of the field of their application, for example, “error” – for measuring instruments, while “uncertainty” – for measurement results.
- Unequivocal change over to uncertainty of measurements? If “Yes”, then:

- c1) Introduction of the GUM instead of existing normative technical documents (NTDs)
- c2) Development of a new normative document based upon the GUM and the existing NTDs
- d) Other variants

(\* Question 8 seemingly refers to the countries of the Commonwealth of Independent States (former USSR))

