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Evaluation of Research Institutions of the National Academy of Sciences of Ukraine: Old and New Approaches

National Academy of Sciences of Ukraine (NASU): some facts and key figures (2015)

- 183 research organizations (3 sections, 14 departments)
- 18,3 thous. researchers (30 thous. – total number of employees)
- Total budget – 2,4 bl Hryvna Ukr. (less than 90 million Euros according to the market exchange rate)
- At the same time – almost all Ukrainian journals from Thomson-Reuters data base are published by the NASU

Existed procedures of evaluation

Key features of the evaluation

- State certification of research institutions (*certification is a result of evaluation*) is conducted to assess the effectiveness of institutions and to assess, how results correspond with the state priority areas in science and technology and innovation.

- All R&D institutions, which receive state support, are subjects of certification

- It is critically important for applying for inclusion in the State Register of scientific institutions.

- Evaluation took place once in 5 years

Organization of evaluation

- Presidium of the NASU was solely responsible for evaluation
- Evaluation included:

  - survey of scientific organizations and supporting technical institutions;

  - evaluation at the level of departments with possibility to use some extra information and checking of surveyed forms;

  - multidisciplinary expertise (at the level of Presidium) and ranking of research institutions.

Content of Survey

- Information on scientific, technical, and teaching staff (number of employees, who perform R&D, the number of doctors and candidates of sciences, graduate and doctoral students);
- the main results of scientific activities (number of dissertations, publications, books, encyclopedias and dictionaries, textbooks (manuals), articles in scientific journals, including journals, participation in the international scientometric databases);
- practical value of scientific and technical activities for specific sectors and the national economy as a whole, completed applied research projects on which conducted experimental development;

Content of Survey

- financing of design and technological projects, aimed at creation of prototypes (thous. UAH);
- the volume of scientific and technical services (thous. UAH)
- national and international recognition of research results (number of received awards (including state and international awards and grants of the President of Ukraine, the Cabinet of Ministers of Ukraine, the National Academies of Science)
- number of foreign grants
- membership in professional scientific societies and, foreign academies

Example 1 of part of previous survey questionnaire

№	Criteria and indicators	Evaluation и			
		level	weight coefficients.	total	the most significant indicator of column 2
1	2	3	4	5	6
1.	**Targets of research**				
1.1.	Advanced research that were carried out , including their correspondence to the scientific priorities of Ukraine				
1.2.	Technological prospects of research, including their correspondence to the scientific and technological priorities of Ukraine	•			
1.3.	The level of research that were carried out ***Total evaluation of criteria 1***				

New methodology for evaluation of research institutions of NASU

Key elements of new approach

- Based on utilization of international experience and national and international indicators
- Transparent and democratic procedures of evaluation, exclusion of conflict of interests
- Possibility to appeal results of the evaluation from the side of research organization
- More flexible procedure (no single indicator for ranking)
- Involvement of external evaluators

Draft of the new evaluation procedure guidelines

Contents:

- **Introduction**
- **Section 1. Basic Principles underlying the evaluation procedure for scientific institutions**
- **Section 2. Description of the evaluation procedure**
- **Section 3. Criteria to determine a potential conflict of interest on the part of review board members**
- **Section 4.Working procedure of the review boards**
- **Supplements: questionnaire of the research institution and recommendations**

Evaluation stages

1. Expert group
2. Permanent Expert Committee on a Relevant Field of Science
3. Permanent Evaluation Committee of the National Academy of Sciences of Ukraine

First stage of evaluation

- At the first stage, the **Expert group** (first-level review board) evaluates the scientific activities of the Institution.
- The members of the group inspect the Institution activities, analyze the inquiry form filled by the Institution beforehand, verify whether the materials submitted by the Institution are unbiased, and prepare their conclusion according to the selected criteria (given in Subsection 4.2 of the Guidelines).

Second stage of evaluation

- At the second stage, the **Permanent Expert Committee on a Relevant Field of Science** (second-level review board) prepares a presentation on the Institution activities in accordance with the report of the first-level group and after consultations with the Institution.
- The second-level review board conveys the conclusion of the first-level group to the Institution.
- The Institution can make a statement concerning this conclusion.

Third stage of evaluation

- At the third stage, the **Permanent Evaluation Committee of the National Academy of Sciences of Ukraine** (third-level review board) considers the presentation of the second-level board, the conclusion of the first-level group, and the statement of the Institution.
- The third stage of the evaluation should result in the report of the third-stage review board that should evaluate the scientific activities of the Institution and contain recommendation on its further financing.
- The report of the third-stage review board should be based on the results of the first-level and second-level evaluation stages.

Results of evaluation

- The **Permanent Evaluation Committee of the National Academy of Sciences of Ukraine** (third-level review board) publishes in the official Internet site of the NAS of Ukraine its report on the evaluation of the Institution scientific activities along with the underlying information, i.e.,
- the presentation of the Institution prepared by the second-level review board;
- the first-level review board conclusion on the evaluation of the Institution activities;
- the statement of the Institution concerning the conclusion of the first-level review board.

Procedures of formation and responsibilities of the review boards and expert groups - 1

- **Permanent Evaluation Committee of the National Academy of Sciences of Ukraine** (third-level review board) is formed by the Presidium of the NAS of Ukraine; it initiates the evaluation procedure.
- The Permanent Evaluation Committee is suggested to be an independent agency.
- The Permanent Evaluation Committee comprises:
- Representatives of the NAS of Ukraine:
- 3 representatives of Department I and 2 representatives of each of Departments II and III; they should not be members of the Presidium of the NAS of Ukraine,
- 1 representative of the special group of institutions of the NAS of Ukraine that includes libraries and museums,
- 1 representative of national nature parks, arboreta etc.,

Procedures of formation and responsibilities of the review boards and expert groups - 2

- a representative of the Ministry of Education and Science of Ukraine;
- a representative of the Council of Rectors of institutions of higher education;
- a representative of Ukrainian employers (Ukrainian League of Industrialists or other organization);
- a representative of science-oriented business (Microsoft etc.);
- a representative of the relevant department of the Ministry of Finance of Ukraine;
- a representative of the relevant department of the Ministry of Economic Development and Trade of Ukraine;
- a representative of the National Institute for Strategic Studies.

The third-level review board could also include foreign experts

The second level: Permanent Expert Committees on the Relevant Fields of Science

- The second-level review boards are formed by the departments of the NAS of Ukraine by the resolutions of the relevant Bureaus of the departments of the NAS of Ukraine after agreement with the Permanent Evaluation Committee (third-level review board).
- Current activities of the third- and second-level review boards are provided by the Scientific Management Department of the Presidium of the NAS of Ukraine.
- A Permanent Expert Committee on a Relevant Field of Science (second-level review board) comprises at least than 8 members, i.e.,
- 4 representatives of the relevant Department;
- 1 or 2 representatives of other subdivisions and institutions;
- at least 2 representatives of foreign scientific institutions (including foreign members of the NAS of Ukraine or representatives of the "scientific diaspora".

The Permanent Expert Committee on the Relevant Field of Science (second-level review board):

- forms an Expert Group (first-level review board) after consultations with the Institution subject to the evaluation procedure;
- prepares a presentation on the Institution activities in accordance with the conclusions of the first-level group that has visited the Institution and after agreement with the Institution;
- reviews the conclusion of the first-level group to the Institution that has to prepare a statement concerning this conclusion;
- reviews the evaluation materials, i.e., the presentation of the Institution, the conclusion of the first-level review board, and the statement of the Institution concerning this conclusion, to the first-level review board.

The first level: The members of an Expert Group (first-level review board)

- is formed by the second-level review board, inspect the Institution activities, analyze the inquiry form of the Institution, submitted by the Institution beforehand, interview the scientists from the Institution subdivisions (departments, laboratories etc.), verify the objectivity of the materials subjected by the Institution, and prepare a conclusion on its scientific activities.
- An Expert Group should comprise at least 5 members, among them at least 2 members from other institutions (1 foreign expert would be highly desired).

The Institution has the following opportunities to take part in the evaluation procedure:

- prior to the selection of experts of the first-level review board by the second-level review board:
- the Institution can propose a list of main research fields to be covered by the evaluation procedure;
- the Institution can propose experts in these research fields according to the criteria that determine a potential conflict of interest

The Institution has the following opportunities to take part in the evaluation procedure (continuation):

- following the selection of experts of the first-level review board by the second-level review board:
- - the Institution can comment on whether the experts cover the research fields named by the Institution;
- - the Institution can comment on whether it sees a potential conflict of interest among the experts selected

Institution has the following opportunities to take part in the evaluation procedure (continuation -2):

- In case the second-level review board and the Institution fail to reach an agreement after the discussion of the comments, the final decision should be made by the first-order review board.
- The Institution obtains from the second-level review board a mandatory copy of the first-level review board conclusion and is obliged to prepare its statement concerning the conclusion of the first-level review board.

Criteria for evaluation of the quality of work and potential of an Institution by the first-level review board

- A. Development of the institution in previous years and its research strategy for the next years
- B. Scientific results
- C. Scientific events and public outreach
- D. Appropriateness of facilities/financial provision
- Special attention: Collaboration and networking (several positions are considered)

Example: B. Evaluation results

- 1. What does an assessment of work performance indicators of an Institution (subdivision, research worker) yield in terms of:
- - the number of publications (depending on the publication culture of the subject area, in particular in peer-reviewed journals, at peer-reviewed conferences, in monographs etc.);
- - the number of commercial property rights and patents, the number of consulting contracts and expert reviews;
- - the amount of third party funds raised for research, consulting, services, etc.;
- - the income from commercial activity, lease;
- - other indicators.

Quality assurance

- A. Internal quality management at the Institution
- B. Assessment of the Institution by the relevant Department of the NAS of Ukraine

Strategic significance

- Is the institution of strategic significance:
- for the further development of a certain special field and its environment?
- as a hub for specialists or regional clusters?
- for the further development of fields of technology, information and other services, consulting, social-political tasks?
- for the profiling of programs of the NAS of Ukraine?

Some features of the pilot evaluation

- Special commissions for evaluation have been formed but with very few foreign experts
- 14 institutes in different disciplines were evaluated
- All institutes passed the evaluation procedure
- Almost all of them have received high marks
- <u>However</u>: Not only institutes but research units have been evaluated. This opens the way for structural changes within the institutes

Key problems of the institutes

- Extremely low level of financing
- Lack of international contacts (relatively small groups of researchers are working at the international level in co-operation with foreign colleagues)
- Obsolete equipment
- Aging personnel

Recommendations of the Evaluation -1

- Not all positions of the evaluation are relevant to Ukrainian realities
- Some simplifications of questions will be useful
- Evaluation itself requires more time. Some institutes had no time to prepare Report in the best way.
- There is a need to create separate evaluation office within the NASU

Recommendations of the Evaluation Procedure-2

- Not all recommendations of the expert groups were relevant to the problems of the institutes
- Sets of indicators have to be more diversified, depending on the scientific disciplines
- Foreign experts have to be involved more actively in the process of evalaution

Possible areas of co-operation

- Modification of evaluation system according to the European (international) standards
- Assistance in provision of independent experts for evaluation and participation in evaluation procedures
- Consultations on introduction of assessment procedures and creation of the pool of experts

Thank you for attention !