SOLUTIONS FOR HIGHER QUALITY OF SCIENTIFIC RESEARCH: CASE STUDY OF NATIONAL INSTITUTE FOR SCIENCE AND TECHNOLOGY POLICY AND STRATEGY STUDIES

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Abstract:

Research quality is one of the problems of high attention in activities of social studies in general and strategy and policy studies in particular. On basis of the set of temporarily identified indicators and the actual survey of research activities by researchers of National Institute for Science and Technology Policy and Strategy Studies (NISTPASS), the authors of this paper made an initial assessment of research quality of some research projects implemented by Ministry of Science and Technology (MOST) and then, from these survey outcomes, propose some solutions to enhance research quality for strategy and policy studies.

Keywords*: Scientific research; Research quality; Strategy and policy.*

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1. Overview on quality of scientific research

"Quality" is a largely used term which plays important roles in all aspects of practice from production of tangible goods to activities of scientific research to create intangible assets - new knowledge. Despite these important roles, the quality is a difficult term to be interpreted and to be measured. ISO (International Standard Organization) made a definition which states: "Quality is a set of inherent characteristics fulfills a set of requirement" *(The ISO 9000 Handbook)*. Since there is no commonly agreed interpretation of the term of "research quality" in different contexts, this paper does not focus efforts on definition of research quality of individual research papers but for the definition of this term by ISO and then applies these concepts of research quality for research reports. This paper takes the concepts that the quality of scientific research is the full set of characteristics of process and outcomes of scientific research which are to meet requirements formulated by sponsors, customers and stakeholders.

According to *Boaz & Ashby (2003)*, the quality of scientific research is a notion which is abstract enough and includes all the aspects of research

activities and designs. The research quality relates to the accordance between problems to study and research methods to be used, selection of research objects, measurement of research outcomes, protection of impartiality and prevention of wrong interpretations.

During exchange of views on research quality, one of the most asked questions is: What is a good quality research project? Answering this question, *Harden et al. (1999)* made 7 indicators for evaluation of quality of a research project, namely: (i) Clearly defined theoretical frameworks including a set of good references; (ii) Clearly defined objectives and targets of research; (iii) Clearly described contents of research; (iv) Clearly described survey samples of research; (v) Clearly described methodologies including methods of data collection and processing; (vi) Multiple analysis of research data by researching staffs; and (vii) Enough data to make analysis and to cover the inconsistencies between data and interpretation. On basis of these 7 indicators, *Boaz & Ashby (2003)* selected 15 research projects for assessment and they noted only 2 of them to meet the full set of these indicators of good research projects, and less than a half of them have good descriptions of survey samples and methodology of research. Insufficient information for research, in many cases, makes research outcomes low credible. In addition, in assessment of research quality, *Grayson (2002)* found out that reference sources are usually are not so good, namely time late, high costs, possible prejudice, abuse, inconsistency and incapability for detection of frauds.

According to *Litman (2012)*, a good scientific researcher should be successful to exhibit desires of readers to discover truths which are expressed in the following aspects: (i) Well defined questions for research; (ii) Well defined contexts and available information for research; (iii) Consideration of different aspects of research problems; (iv) Presentation of evidences and references accompanied with data and analysis which readers can repeat or follow up; (v) Discussion of hypotheses of critical natures, controversial proposals and findings, and interpretation of choices; (vi) Careful conclusions and debates of learnt lessons; (vii) Adequate sources of reference documents with their analysis which is made selectively and critically. *Litman (2012)* also considered that a good research project needs to have determination and honesty that the facts should be processed carefully on basis of available sources of information and readiness to accept errors, limitations and controversial indications. A good research project should be capable of identifying important elements which may be eliminated during research process. It should carefully identify risks and avoid exaggerated claims.

A good research project should secure the coherence of research approaches. The coherence in a research project is the streamlining between paragraphs, chapters and parts, and logic reasoning of issues in the research project report including the coherence between new and old information. Greg Dorchies from Clarkson University (USA) considers that the coherence is an intangible glue to integrate chapters and parts together[1]. In scientific research, particularly in fields of social studies, researchers when presenting their research reports always try to integrate the structure of presentation in order to enhance the comprehension of research ideas by readers. A scientific report without the binding coherence could lead readers to misunderstanding or to less comprehension of report contents and then, by this way, reduce efforts of report writers for effective exchange of information.

A good research project needs to be the one which does not violate research norms, particularly the ethical norms of scientific research. The scientific ethics include the application of main ethical principles in scientific research activities. Norms of scientific ethics distinguish acts between being acceptable and being unacceptable. Scientific ethics are built up on basis of trusts, namely scientists trust that outcomes of research works conducted by other scientists are true and valid, and the entire society believes that research outcomes of scientists are credible and impartial. This trust, however, can be maintained when the scientific research community devotes themselves to research good values based on principles of scientific ethics *(NAS, 2009)*.

Through the above noted remarks and analysis, the authors of this paper proposed a temporary set of indicators for quality assessment of research projects in fields of social sciences, mainly in sector of policy studies. A research project of good quality needs to meet the following indicators: (i) Clearly defined theoretical frameworks including the research overview and a good definition of research problems; (ii) Clearly conceived objectives and questions of research; (iii) Clearly described contents of research; (iv) Reasonably constructed methods of research; (v) Credibly provided sources of data and information; (vi) Well secured coherence of conducted research; and (vii) No violation of norms of research ethics.

2. Some remaining problems of actual research quality[2]

Being based on the above constructed temporary set of indicators, the

[1] See the website: www.clarkson.edu

[2] Due to research ethic reasons, this paper does not note the names of authors as well as the titles of surveyed research projects and they are not also noted among referenced sources.

authors conducted a survey of 30 research tasks of Ministry level and grass-root levels hosted by NISTPASS and other units of MOST. Similarly to the above noted assessments by *Boaz & Ashby (2003)* for abroad conducted research tasks, there are no research tasks among these 30 research tasks which can meet at the same time in full the 7 indicators of the temporary set to be qualified as research project of good quality. If we accept every indicator to be sub-divided into various levels of qualification (namely good, medium and bad), we would see that majority can meet only the medium level of each indicator. Some widespread problems of research projects can be listed as follows:

Overview of research supporting documents: Majority of research projects do not exhibit well to have good overviews of research supporting documents. Obviously, the overview of research supporting documents plays very important roles which cannot be missed in scientific research activities. They are here: (i) to provide conceptual backgrounds to conceive research projects; (ii) to help link the position between the knowledge to discover and the existing one which likely permits to avoid the re-invention of bicycles; (iii) to connect the knowledge developed by research projects with the existing systems of knowledge. Here, the overview of research supporting documents is not simply to list out or to describe them but also to make the assessment and analysis from critical position of visions. As said *Forsyth (2011)*, the overview of research supporting documents needs to be focused first on objectives and connected to questions raised for research projects.

In practice, however, many among the surveyed research projects present research supporting documents in a manner of listing, copying and gathering without efforts to systemize, to extract and to analyze them in a way to reflect clearly the topics of interests of research works. For example, some authors list out a rich set of laws and regulations related to the topics of their research without any analysis and assessment. It is possible to say that almost all the surveyed research projects were unable to define clearly their theoretical frameworks. Another example of inappropriate presentation of overview of research works which are related to the evaluation and validation of scientific research results had the following presentation in the section of overviews: "*The business developed on basis of scientific-technological (S&T) research works in India from 1996 has been 50% reduced with income taxes, and only in the sector of software and manufacture industries the income taxes were exempted fully from 1997. It was the breakthrough decision by the Indian Government to enhance the promotion for development of business and commercialization of (S&T) research results*". We can see that this paragraph in the presentation

overview is more suitable for a research work for development of technological markets or commercialization of research results than for a research work for evaluation and validation of research results. Another miss of this overview note is the absence of referenced sources.

Definition of objectives and questions for research works: The questions raised for research works set up the main focused topics on research works. They are to fix the core attentions, to define the methodology and to identify phases of research implementation. The research questions are confirmed on basis of overview of research supporting documents. However, majority of research projects which we surveyed usually are found in some of the following cases: (i) No noted research questions remain in connection with the overview of research supporting documents; (ii) Research questions are raised but not based on research supporting documents; and (iii) Research questions are not profound and essential. For example, a research work which was developed for evaluation of impacts from Trans Pacific Partnership Agreement (TPP) puts down such a research question: "What is TPP Agreement?" This question could be posed for papers in a daily newspaper or a weekly newspaper to provide the large public audience with general information. But in case of research questions for a research topic it might need to prepare tens of questions of such a type for the same topic.

How, then, to identify a good research question? From the vision of this paper authors, the research questions should: (i) Rise from global studies of related documents or from practice of real life; (ii) Be confined within possibly available capacities and sources; (iii) Rise from ideas set up the research team but not be ideas copied from other researchers; (iv) Be formulated in simple and clear manner; and (v) Be interesting and attractive for the whole research process.

Contents of research: When preparing scientific reports, particularly on the status of research problems, majority of research works are mainly to describe facts without providing judgments, analysis and evaluation from critical points of vision. For example, a researcher when doing a study on equitization of R&D institutes provided a case study. The author noted briefly the case, development history, tasks and functions but did not mention clearly the core elements for analysis and comparison of equitization features. Another research project is made in relation to development of S&T markets. When assessing the actual status of State policies for development of S&T markets the author mainly listed out State policy documents and quoted some contents of these documents without providing any consideration, analysis and evaluation of practical

implementation of the concerned policies. During the review of the surveyed research projects, the authors has a feeling that the research projects hold certain positions of "hesitations" when they evaluate State policy documents, particularly when they deal with shortcomings and errors of policies (note that the analysis is raised during scientific workshops). It is clear that the concerns to be "exaggeratedly viewed" or "badly remarked" remain in practice of scientific research activities. This state of concerns, if researchers are not free from them, would cause difficulties to mobilization of creative potentials of social science researchers, particularly in field of strategy and policies studies.

Research methodologies: The methods of research make the core weak elements that majority of research projects do not pay adequate attentions to. In many cases, authors do not provide clearly descriptions of their research methodology. For example, a research project when describes its research methods includes the following sentence: "(i*) Methods used in the study* include statistical assessment, synthesization, system analysis and sociological surveys*; (ii) Expert methods; (iii) SWOT analysis method; and (iv) Inheritance of available research results*". Majority of the surveyed research projects do not base their research methods on the defined objectives and contents of research works. Naturally, this approach of "global" description of research methodology would not be wrong for all the research projects in the same sector of studies. However, such a global description of research methodology shows well that the research team really does not know how to do to achieve the defined objectives and contents of their research work.

Referenced documents: Many research projects when providing the research supporting overviews do not include the names of authors and the titles of works in the reference part. Some research projects note the concepts they deal with but do not note clearly how the concepts were established, by which authors, in which works, which years and, most importantly, how the referenced sources meet the needs of their research works. For example, a research project wrote: "*The sector of pharmaceutical industry is defined by the Government as spearhead industry for development of the country and assurance of health of the people*" but does not indicate the source documents of the Government they quote. In addition to that, there are authors who do not use fully the referenced works they list out. By other words, there are works which are not used for purposes of research but remain listed in the reference part. Should the "extra list" of referenced sources which has no meanings for research works demonstrate that the authors want to make "pretty shows" of their scope of interests?

In some reports, the way of citation of referenced sources is not coherent. The same authors of research papers may have different ways to quote referenced sources. For example, in a section, authors may indicate the reference based on international rules such as *"(Lundval, 1997)*" but, in another section, they may use such a note "[19]". In our vision, a research report should have an unified way to indicate referenced documents. In practice, the way of use based on world-popular standards and format of citation should be applied globally within a S&T organization and it would be good for its international integration in S&T fields.

Presentation of introduction of scientific works: Many surveyed research projects, in their introduction section, copy almost fully the objectives, contents and methods of research they presented in the research plan submitted for application of research projects. Some of them presented a short version in about ten lines from the application of research projects. In our vision, the competent agencies should issue the regulations which govern the format and structure requirements for contents of scientific reports. These regulations should indicate necessarily the clear differences between a scientific report and its research plan for purpose of application. For example, the research methodology presented in scientific reports should describe clearly the methods actually used for implementation of research works but not a mechanical copy of the methodology presented in the research plan.

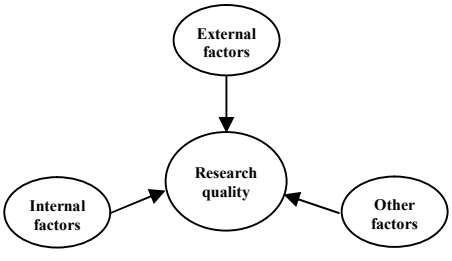
Structural coherence between parts in research works: It is a common practice in scientific reports that a low coherence is observed between the contents of research and questions of research, between reasons of problems and solutions for problems. It is possible to say that majority of research projects related to strategy and policy studies have the section of proposed solutions which are not closely connected to previous sections of search and analysis. For these reasons, the proposed solutions are not enough convincing. In many cases the proposed solutions are based on State issued policies or intuitive considerations of researchers. For example, in the scientific report of a research work related to the status of innovations by enterprises, in the 3rd chapter, the author makes a proposal of "*principles of joint marching"*, as recommendations proposed to policy makers, but the author does not provide any interpretation for the needed application of these principles. Even the contents of research made in Chapter 1 and Chapter 2 do not deal with the concepts of "*principles of joint marching*".

Research ethics: One of the most outstanding problems of research ethics, in connection to the surveyed research projects, is the citation of referenced documents, as presented above. In actual practice, majority of scientific

councils which are in charge to examine the submitted research plans for selection as well as to make the acceptance evaluation of scientific reports do not keep adequate attentions to matters of research ethics. This practice may be one among numerous reasons leading to difficult integration of social science studies of Vietnam into the world's scientific research community. In developed countries, the conformity to principles of research ethics is the natural requirement to researchers. Students and researchers, from early years, in all the universities get instructed to follow norms and standards of research ethics. For example, FGPS (2012), in guidelines by Ottawa University (Canada) for preparation of a thesis or a scientific report, instructs students and young researchers to follow the norms and standards of the research ethics, to prepare research plans and research supporting overviews, to collect data, to present research results and to respect the overall format and rules of scientific reports, citation and establishment of referenced documents.

3. Main factors affecting the research quality

When considering scientific research activities as integrated process the research outcomes (maybe including short, middle and long term factors as seen in Figure 1) exhibit the presence of numerous factors impacting the quality and effects of scientific research activities. Here, this paper divides the impacting factors into three main groups, namely: (i) Group of factors coming from outside of S&T organizations; (ii) Group of factors residing within S&T organizations; and (iii) Group of other factors.



Source: Mandl et al., 2008

Figure 1. Factors causing impacts to quality of research works

Scientific research activities in sectors of social science studies in general and strategy and policy studies in particular suffer impacts from many different factors including the environmental and institutional ones. The latter are specific of every nation/territory. Some factors may be out of control of scientific activity management agencies and S&T organizations. Recent studies show the environment factors cause considerable impacts to

social science research activities *(OECD, 2007)*. Social science studies are based mainly on inspirational mindset and imaginative capacities of researchers. Therefore, the environment for creativity freedom plays very crucial roles for the quality and effects of scientific research. Too strict conditions applied for democratic ambiance and creativity freedom of research activities would limit creative capacities of researchers. In the conditions of low democracy or dictatorial institutions, the social sciences would be difficult to develop and usually heavily politicized *(Sammons, 1996; Mkandawire, 2007)*.

UNESCO (2010) defined 4 main factors impacting research activities in social science sectors: (i) Policies for research activities; (ii) Working conditions of scientists; (iii) Stability and security; and (iv) Level of creativity freedom. Note that the creativity freedom environment is one of the 4 main factors impacting the development of social sciences. From historical point of view, social sciences and politics twisted since long centuries. The development of social sciences in any countries cannot avoid impacts from political institutions of the country. Vietnam is not an exception and here the social sciences have been impacted from the institutional features of socialist oriented market economy. It is necessary to provide a creative environment for social science researchers in our country which can let social science research activities give proper contributions for settlement of problems rising from the socialist oriented market economy structure.

The actual financial structure for S&T activities still keep some inadequate elements which are ones of reasons leading to the low quality and effects of social science researches in general and strategy and policy studies in particular. The actual financial structure gives contributions to spreading practice of lies between sides related to scientific research activities. It is also a slit through which part of research participants legalize the money from people - paid taxes to their own incomes in legal ways. The State issued mechanisms and policies for salaries, working conditions and some other advantageous offers are not adequately applied and then they could lead to reduced human resources in S&T sectors. Also the State management mechanisms in S&T sectors cause impacts to quality and effects of research activities. For example, there exists close links between plans of implementation of assigned tasks and acceptance evaluation of research results, namely too short time planned for implementation of research activities could lead to “easy procedures” of acceptance considerations. *UNESCO (2010)* makes know that the Russian community of social science researchers is dynamic but they usually produce superficial analysis since they face pressures of fast results of researches. It is also not a rare practice in Vietnam.

As illustrations for the main factors impacting the quality of research (Figure 1), the authors of this paper conducted a case study of NISTPASS through a survey. The questionnaires were sent to 17 staff members of NISTPASS. According to the vision of the authors, the questions were set up to include the most basic external and internal factors which impact the quality of research projects of NISTPASS.

The survey results show that the most important factor to cause impacts to quality of research results relates to non-attractive research ambiance. 12 among the 17 surveyed staff members make know that the research career, as vocational occupation, is not attractive in context of the socialist oriented market economy in our country. A good research ambiance is one of important "necessary conditions" which give contributions to produce good quality research works. The opinion of the surveyed staff members also fit the point of view of international researchers which state that the ambiance of creativity freedom is one of the most important factors to cause impacts to the quality of social science researches *(UNESCO, 2010)*.

The actual State mechanisms and policies still hold factors which restrain creative research activities. Majority of questioned staff members (14/17) say that the actual State mechanisms and policies are not really favorable for scientific research, particularly financial mechanisms. Law on S&T 2013 was promulgated with many new regulations which are expected to create breakthrough measures in terms of mechanisms and policies for research activities, particularly for financial ones.

Actually, the financial mechanisms applied for scientific research activities are governed by Inter - Ministerial Circular No. 55/2015/TTLT-BTC-BKHCN between MOST and Ministry of Finance (MOF) (afterward referred to as Circular No. 55) which provides *"guiding norms for establishment of estimates, allocation of budgets and settlement of expenditures for State-budgeted S&T tasks"*. This new Circular No. 55 was issued to replace Inter-Ministerial Circular No. 44/2007/TTLT-BTC-BKHCN between MOST and MOF (afterward referred to as Circular No. 44). The basic difference between the two Circulars is the way researchers get paid for their jobs: Circular No. 44 defines the mode of payment based on specific research components while Circular No. 55 defines the one based on work days. The volume of pay made to researchers according to Circular No. 55 is higher but in its natures, not so different from Circular No. 44. In case of Circular No. 44, for the same contents of research, the research team has to "draw additionally", a few research components which are in fact of low use for scientific reports. Circular No. 55 has "freed" scientists from the "additional drawing" (in fact, for extra pay purpose) but

not "untied" them fully. For example, in case of Circular No. 55, when preparing the expenditure estimates of Research Topic A with some sub-topics, every sub-topic (on basis of guidelines issued by State management agencies) needs to provide the list of implementing individuals and the number of their work days. Then, for finance release purpose of a Ministerial level research project with the total volume of expenditure from VND500 million to VND 1 billion for one year (12 months per year, 22 working days in one month and extra-work time not exceeding 200 hours per year - according to Labor Code), the research team would "fill a prescription" with more work days or "draw out sub-topics" and etc. It is easy to see that both the two Circulars do not meet the essential idea of full mode or partial mode of lump-sum payment defined by Law on S&T 2013. Also, according to some researchers and S&T managers, public research institutes which get State budgets for functional operation costs face many difficulties when implementing Circular No. 55.

Another important factor also impacting the quality of research is the fact that the incomes from research activities cannot make researchers have peace in mind and be passionate for research activities. The survey made among the 17 staff members of NISTPASS that no one of them thinks that the incomes from S&T activities of the Institute can meet more than 40% of essential needs of their families, namely: 8 from 17 surveyed staff members said the incomes from S&T activities of NISTPASS can meet less than 20% of their essential needs, 7 of them give figures from 20 to 40% and 2 of them did give answers to the question on the rate the incomes from S&T activities of the Institute can meet their needs. With this situation of incomes, many staff members, particularly the young ones, have to strive to make a living by doing many additional activities such as foreign language teaching or tutorial course giving and etc. During an exchange made by one of the authors of this paper with young staff members of NISTPASS, one of them said: "*If we rely upon only incomes from research activities and salaries we would die since long time*".

Maybe due certain difficulties as noted above, the general status of the actual research ambiance of NISTPASS is that majority of staff members of NISTPASS do not pay passion for scientific research. When questioned about the level of their passion for scientific research (proposed levels are very high, high, middle, low and nil) and the time they take for research activities only one of them gives the answer of "very high passion" and takes 8 hours per day for research work. Majority of questioned staff members give the answer of "middle level of passion" and take less than 6 hours per day for research work. Maybe the most lucky point for such a

research institute as NISTPASS is that no one of its staff members put himself in the level of "no passion" (see Table 1).

Table 1. Scientific research activities of NISTPASS staff members

Level of passion	Number of answers	Time for research	Number of answers
Very high level	1/17	More 8 hours per day	1/17
High level	3/17	From 6 to 8 hours per day	2/17
Middle level	9/17	From 4 to 6 hours per day	2/17
Low level	2/17	From 2 to 4 hours per day	4/17
No passion	0/17	Less than 2 hours per day	3/17

Source: Survey results by the team of authors

The eagerness and the passion for research by researchers is one of the most important factors to impact the quality of research works. The eagerness and the passion for research are reflected not only through the volume of time they take for research activities, the number of scientific works they read or the number of students they supervise for research but the passion and intellects they devote for research activities. A researcher without eagerness and passion for scientific research hardly can produce good quality research works. It is the eagerness and the passion for research would turn research activities to the natural needs of researchers. They would be driving forces for them to complete research works in time but not pressures from administrative services or incomes from research activities (as additions to salaries). The passion for research is also a type of capabilities to help researchers to come to endpoints of discovery process.

In addition, during recent years, some qualified and experienced researchers of the Institute retired or shifted to other work positions and newly recruited staff members have yet limited research capacities then unable to substitute them. In this context, the survey shows majority of questioned staff members (8 from 12 giving answers) thinks that part of researchers do not hold well scientific research methodologies. Also the same, 10 from 15 staff members say the capacities of a majority of researching staffs of the Institute, particularly the young researchers, are unable to host research tasks assigned by NISTPASS and MOST. Therefore, the enhancement of quality and quantity of researchers of the Institute is one of the central needs for development of the Institute in many coming years.

4. Some solutions for enhancement of the research quality

The indicators for evaluation are proposed by the team of authors for temporary use. For purpose of official evaluation of quality of scientific research, MOST should consider to establish a set of indicators for evaluation of research tasks. Actually, certain ministries issue the sheets for acceptance evaluation of research tasks including a list of indicators for evaluation. However, certain sheets among them are of so strict and administrative nature then cannot allow producing exact evaluations of quality of research tasks. Even if we do not have a good list of indicators for evaluation now it should be better let experts do the evaluation of research results on basis of their own experience and intuitive assessment.

The work of acceptance evaluation for research projects should be further improved. For example, actually the Council for evaluation of acceptance of research tasks of MOST defines 2 categories: "accepted" and "not accepted". With the actual mechanisms of financial management as well as other State issued regulations, the Council for evaluation usually treats research project hosting entities (individuals or organizations) in a "soft" manner. In practice, it is very rare to see the "not accepted" decision by the Council of evaluation. In our study, we proposed the evaluation for acceptance of a research task in various categories (levels), namely: (i) Level of "fully accepted" which means that, once having been accepted, the hosting entities remain to complete only minor remarks such as, mainly, technical errors of presentation but not the ones of contents, methods or results of research tasks. For this level of acceptance, only the signature of the Council Chairperson is enough for certification; (ii) Level of "accepted with minor rectifications" which means that, once having been accepted, minor rectification are required to be completed and the rectified research report needs to be reviewed again by opponent members of the Council and to get their approval for rectified parts in writing; (iii) Level of "accepted with major rectifications" which means that, once having been accepted, minor rectifications are required to be completed and the rectified research report needs to be reviewed by all the Council members and to get their approval for rectified parts in writing; (iv) Level of "to be revised" which means that the research task hosting Chairperson is required to prepare again the research report in a period of time from 3 to 6 months then the Council will be recalled to make the re-evaluation; and (v) Level of "non-accepted". For the cases from Level 3 to Level 5, the Chairperson which hosts the research task is in charge to cover the costs related to the review of rectified research reports, the meeting of the Council for re-evaluation, and for reimbursement of financial funds supported by State budgets in case of "non-accepted".

Competent agencies and official authorities should have more open attitudes when examining research results produced by scientists without prejudice of "exaggerated view" and "bad remark". The issuance of major policies needs to be accompanied with supervision of implementation and evaluation of outcomes. This should be legalized by State institutional regulations. Otherwise, organizations and individuals who advise the policy-making authorities would never want and support research tasks for evaluation of quality and effects of the documents of which they give contribution for issuance.

The issuance of norms for scientific research includes the norms for research supporting review (literature review), research methodologies and, particularly, the norms for research ethics. The research norms will give contributions to enhance the mutual trust between managing authorities and scientists that the money from State budgets and people-paid taxes are used in right and morally correct ways. These norms for scientific research not only help the works of evaluation of quality of research tasks but also support S&T organizations to identify and to select those staff who really have competences and passion for scientific research activities. The norms for scientific research, once issued, will help starting researchers in universities and research institutes be more clearly aware of their decision to become real researchers.

In order to secure and to enhance the quality of research, the State agencies and S&T organizations need to build up and to implement such mechanisms which would let researchers cover their needs with the incomes they get from research activities and then they would have full passions for scientific research activities. Also by this way, researchers have main duties to produce right products which are conform to norms and standards, and useful for the society. From another side, the society should offer researchers such a level of living conditions which would reduce their worries for daily needs. Then we can expect a higher quality of scientific research./.

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