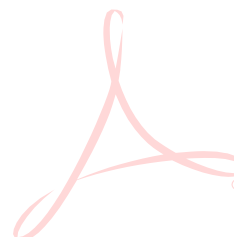


## **The External Evaluation Report of a Doctoral Study Domain**

Contributions and comments from the international expert:  
Francesc-Xavier Grau Vidal (Universitat Rovira I Virgili, Spain)

### Contents

- I. Introduction
- II. Methods used
- III. Analysis of performance indicator
- IV. SWOT Analysis
- V. Overview of judgments awarded and of the recommendations
- VI. Conclusions and general recommendations
- VII. Annexes



### **I. Introduction<sup>1</sup>**

In this chapter, the following shall be summarized:

- the context in which this external evaluation report was drafted (**the type of evaluation, the period of the evaluation visit, the composition of the Experts Committee** etc.);
- details about the doctoral school(s) of which the doctoral domain under review is part (number of doctoral advisors, number of students, institutional context, short history etc.);
- details about the doctoral study domain under review (number of students, institutional context, short history etc.).

### **II. Methods used**

This chapter will contain the methods and tools used in the external evaluation process, before and during the evaluation visit, including at least:

- The analysis of the internal evaluation report of the doctoral study domain under review and its Annexes;
- The analysis of documents made available by the IOSUD, in physical format, during the evaluation visit (if such documents have been requested);
- The analysis of documents, data and information available on the IOSUD/Doctoral School(s) website, in electronic format;
- Visiting the buildings included in the institution's property, comprising (indicative and non-exhaustive list, which shall be changed according to the context):
  - classrooms;
  - laboratories;

---

<sup>1</sup> Each time when applicable the information shall be presented gender-wise.



- the institution's library;
- research centers;
- the Career Counselling and Guidance Center;
- lecture halls for students;
- the student residences;
- the student cafeteria;
- sports ground etc.;
- Meeting/discussions with doctoral students in the doctoral study domain under review;
- Meeting/Discussions with the graduates of the doctoral study domain under review;
- Meeting/Discussions with employers of the graduates in the doctoral study domain under review;
- Meeting/Discussions with the school officials of the Doctoral School(s) in which the doctoral study domain under review is operating;
- Meeting/Discussions with the doctoral advisors in the doctoral study domain under review;
- Meeting/discussions with the representatives of the various structures of the IOSUD/Doctoral School(s) in which the doctoral study domain under review is operating:
  - The Council of the Doctoral School, the University Senate, the Board of Directors, the Quality Assessment and Assurance Commission, the Quality Assurance Department, the Ethics Commission (including with the student representatives of these structures);
  - the Career Counselling and Guidance Center;
  - student organizations;
  - secretariats;
  - various departments/administrative offices (Social/Student residences-Cafeterias etc.);
- Application of questionnaires to doctoral students or academic staff in the doctoral study domain under review.

### **III. Analysis of ARACIS's performance indicators**

#### **Domain A. INSTITUTIONAL CAPACITY**

*\*general description of domain analysis.*

#### **Criterion A.1. The administrative, managerial institutional structures and the financial resources**

*\*general description of the criterion analysis.*

**Standard A.1.1.** *The institution organizing doctoral studies (IOSUD) has implemented the effective functioning mechanisms provided for in the specific legislation on the organization of doctoral studies.*

*\*general description of the standard analysis.*

**Performance Indicator A.1.1.1.** *The existence of specific regulations and their application at the level of the Doctoral School of the respective university doctoral study domain:*

*(a) the internal regulations of the Doctoral School;*

*(b) the Methodology for conducting elections for the position of director of the Council of doctoral school (CSD), as well as elections by the students of their representative in CSD and the evidence of their conduct;*



c) the Methodologies for organizing and conducting doctoral studies (for the admission of doctoral students, for the completion of doctoral studies);

d) the existence of mechanisms for recognizing the status of a Doctoral advisor and the equivalence of the doctoral degree obtained abroad;

e) functional management structures (Council of the doctoral school), giving as well proof of the regularity of meetings;

f) the contract for doctoral studies;

g) internal procedures for the analysis and approval of proposals regarding the training for doctoral study programs based on advanced academic studies.

- *The information provided in the internal report and the annexed links and documents shows that IOSUD of University of Bacau has implemented the mechanisms provided for in the legislation and that has the required logistical resources.*

Recommendations:

**The indicator is fulfilled**

**Performance Indicator A.1.1.2.** The doctoral school' Regulation includes mandatory criteria, procedures and standards binding on the aspects specified in Article 17, paragraph (5) of the Government Decision No. 681/2011 on the approval of the Code of Doctoral Studies with subsequent amendments and additions.

- *Based on the internal report and the annexed documents and links, the doctoral school regulations satisfy this requirement*

Recommendations:

**The indicator is fulfilled**

**Standard A.1.2.** The IOSUD has the logistical resources necessary to carry out the doctoral studies' mission.

- *Based on the internal report and the annexed documents and links, the IOSUD- University of Bacau has the required logistical resources*

**Performance Indicator A.1.2.1.** The existence and effectiveness of an appropriate IT system to keep track of doctoral students and their academic background.

- *According to the information in the Internal report, the IT system is suited to keep track of doctoral students and their academic background*

Recommendations:

**The indicator is fulfilled**

**Performance Indicator A.1.2.2.** The existence and use of an appropriate software program and evidence of its use to verify the percentage of similarity in all doctoral theses.

- *Regarding the existence of the appropriate software to identify possible plagiarism cases, the meetings with academic personnel and PhD students and graduates have shown that the software is used in a regular basis.*

Recommendations:

**The indicator is fulfilled**



Standard A.1.3. The IOSUD makes sure that financial resources are used optimally, and the revenues obtained from doctoral studies are supplemented through additional funding besides governmental funding.

- *Again, from the documentation provided is clear enough that IOSUD- University of Bacau satisfies this standard.*

**Performance Indicator A.1.3.1.** Existence of at least one research or institutional / human resources development grant under implementation at the time of submission of the internal evaluation file, per doctoral study domain under evaluation, or existence of at least 2 research or institutional development / human resources grant for the doctoral study domain, obtained by doctoral thesis advisors operating in the evaluated domain within the past 5 years. The grants address relevant themes for the respective domain and, as a rule, are engaging doctoral students.

- *The satisfaction of these requirements is adequately accredited in the internal report and with the annexed documents. The criterion is met but, given the small dimension of all the PhD Program, I would suggest to increase the minimum number of financed projects and also specify a minimum in terms of their economic volume.*

*Recommendations:*

***The indicator is fulfilled***

**Performance Indicator \*A.1.3.2.** The percentage of doctoral students active at the time of the evaluation, who for at least six months receive additional funding sources besides government funding, through scholarships awarded by individual persons or by legal entities, or who are financially supported through research or institutional / human resources development grants is not less than 20%.

- *The satisfaction of these requirements is adequately accredited in the internal report and with the annexed documents.*

*Recommendations:*

***The indicator is fulfilled***

**Performance Indicator \*A.1.3.3.<sup>2</sup>** At least 10% of the total amount of doctoral grants obtained by the university through institutional contracts and of tuition fees collected from the doctoral students enrolled in the paid tuition system is used to reimburse professional training expenses of doctoral students (attending conferences, summer schools, training, programs abroad, publication of specialty papers or other specific forms of dissemination etc.).

- *The satisfaction of these requirements is adequately accredited in the internal report and with the annexed documents. The criteria A.1.3.2. and A.1.3.3. are met but in some cases the financial support seems very low (Annex 2.23) I would suggest to establish a minimum amount for this financial support in order to be considered, referred to the annual amount of a state scholarship.*

*Recommendations:*

***The indicator is fulfilled***

---

<sup>2</sup> The indicators marked with an asterisk (\*) hold a special status, referring exclusively to the evaluation of doctoral studies domains, as per Article 12 from the annex No.1 of the Order of the minister of education No. 3651/12.04.2021 approving the Methodology for evaluating university doctoral studies and the system of criteria, standards and performance indicators used in the evaluation. In case they are not met, the Agency extends a period of maximum 3 years to IOSUD to correct the respective deficiencies.



## **Criterion A.2. Research infrastructure**

*The information on this indicator comes from the internal report and its annexes and from the members of the evaluation committee that were able to physically visit UBc. The limitations of the online visit do not allow a stronger judgment.*

*Standard A.2.1. The IOSUD has a modern research infrastructure to support the conduct of doctoral studies' specific activities.*

**Performance Indicator A.2.1.1.** *The venues and the material equipment available to the doctoral school enable the research activities in the evaluated domain to be carried out, in line with the assumed mission and objectives (computers, specific software, equipment, laboratory equipment, library, access to international databases etc.). The research infrastructure and the provision of research services are presented to the public through a specific platform. The research infrastructure described above, which was purchased and developed within the past 5 years will be presented distinctly.*

*- Based on the information provided, the field of environmental engineering has good, modern and diverse facilities within its scientific field.*

*Recommendations:*

***The indicator is fulfilled***

## **Criterion A.3. Quality of Human Resources**

*\*general description of the criterion analysis.*

*Standard A.3.1. At the level of each domain there are sufficient qualified staff to ensure the conduct of doctoral study program.*

*\*general description of the standard analysis.*

**Performance Indicator A.3.1.1.** *Minimum three doctoral thesis advisors within that doctoral domain, and at least 50% of them (but no less than three) meet the minimum standards of the National Council for Attestation of University Degrees, Diplomas and Certificates (CNATDCU) in force at the time when the evaluation is carried out, which standards are required and mandatory for obtaining the enabling certification.*

*- All doctoral supervisors in the field of environmental engineering fully comply with the minimum criteria established. Nevertheless, ARACIS could consider increasing significantly this minimum of three and allow or promote interuniversity programs in order to enhance scientific communities of greater dimension when it is difficult to reach critical mass in a single university*

*Recommendations:*

***The indicator is fulfilled***

**Performance Indicator \*A.3.1.2.** *At least 50% of all doctoral advisors have a full-time employment contract for an indefinite period with the IOSUD.*

*- The satisfaction of these requirements is adequately accredited in the internal report and with the annexed documents*

*Recommendations:*

***The indicator is fulfilled***



**Performance Indicator A.3.1.3.** *The study subjects in the education program based on advanced higher education studies pertaining to the doctoral domain are taught by teaching staff or researchers who are doctoral thesis advisors / certified doctoral thesis advisors, professors / CS I or lecturer / CS II, with proved expertise in the field of the study subjects they teach, or other specialists in the field who meet the standards established by the institution in relation with the aforementioned teaching and research functions, as provided by the law.*

*- The satisfaction of these requirements is adequately accredited in the internal report and with the annexed documents*

*Recommendations:*

***The indicator is fulfilled***

**Performance Indicator \*A.3.1.4.** *The percentage of doctoral thesis advisors who concomitantly coordinate more than 8 doctoral students, but no more than 12, who are themselves studying in doctoral programs<sup>3</sup> does not exceed 20%.*

*- The satisfaction of these requirements is adequately accredited in the internal report and with the annexed documents*

*Recommendations:*

***The indicator is fulfilled.***

**Standard A.3.2.** *The Doctoral advisors within the domain are carrying out a scientific activity visible at international level.*

*\*general description of the standard analysis.*

**Performance Indicator A.3.2.1.** *At least 50% of the doctoral thesis advisors in the evaluated domain have at least 5 Web of Science- or ERIH-indexed publications in magazines of impact, or other achievements of relevant significance for that domain, including international-level contributions that indicate progress in scientific research - development - innovation for the evaluated domain. The aforementioned doctoral thesis advisors enjoy international awareness within the past five years, consisting of: membership on scientific boards of international publications and conferences; membership on boards of international professional associations; guests in conferences or expert groups working abroad, or membership on doctoral defense commissions at universities abroad or co-leading with universities abroad. For Arts and Sports and Physical Education Sciences, doctoral thesis advisors shall prove their international visibility within the past five years by their membership on the boards of professional associations, membership in organizing committees of arts events and international competitions, membership on juries or umpire teams in artistic events or international competitions.*

*- The information provided in the internal report and its annexes was complemented with more detail during the visit. All the doctoral supervisors are present in the international arena in addition to their impact with the publications: members of editorial boards, members of international associations, international evaluators, members of scientific committees, ...*

*Recommendations:*

---

<sup>3</sup> 3 years for the doctoral university studies with the duration stipulated at Article 159, paragraph (3), respectively 4 years for the doctoral university studies with the duration stipulated at Article 174, paragraph (3) of the Law of national education No.1/2011 with subsequent amendments and additions, with additional extension periods approved as per Article 39, paragraph (3) of the Code of doctoral studies approved by the GD No. 681/2011 with subsequent amendments and additions.



**The indicator is fulfilled**

**Performance Indicator \*A.3.2.2.** *At least 50% of the doctoral thesis advisors in a specific doctoral study domain continue to be active in their scientific field, and acquire at least 25% of the score requested by the minimal CNATDCU standards in force at the time of the evaluation, which are required and mandatory for acquiring their enabling certificate, based on their scientific results within the past five years.*

*- The satisfaction of these requirements is adequately accredited in the internal report and with the annexed documents*

*Recommendations:*

**The indicator is fulfilled**

**Domain B. EDUCATIONAL EFFECTIVENESS**

*\*general description of domain analysis.*

**Criterion B.1. The number, quality and diversity of candidates enrolled for the admission contest**

*\*general description of the criterion analysis.*

*Standard B.1.1. The institution organizing doctoral studies has the capacity to attract candidates from outside the higher education institution or a number of candidates exceeding the number of seats available.*

*\*general description of the standard analysis.*

**Performance Indicator \*B.1.1.1.** *The ratio between the number of graduates of masters' programs of other higher education institutions, national or foreign, who have enrolled for the doctoral admission contest within the past five years and the number of seats funded by the state budget, put out through contest within the doctoral domain is at least 0.2 or the ratio between the number of candidates within the past five years and the number of seats funded by the state budget put out through contest within the doctoral studies domain is at least 1,2.*

*- Figures given in Table 10 of Self-evaluation report refer to master's graduates from other universities entering to the PhD programs of UBc. The average ratio for the last 5 years is 0.35 in the field of Environmental Engineering, well above the minimum of 0.2. Ratios are OK, but it seems to me that the absolute values are too low. Apparently, there are not established minimum levels for the number of PhD registrations per year, or number of seats financed from the state, but those minima should be considered*

*- The set of ARACIS indicators is well suited for the assurance of the quality of PhD education but, to me, it does not point enough to quality enhancement. Concerning the number of PhD candidates, registered PhD students and theses published per year, the university and each of its doctoral school should establish their targets based on their actual situation and the reference of the general situation in Romania and also international benchmarking. In my opinion, the numbers are too low and, among other aspects, do not justify the existence of 2 different fields within UBc doctoral school. Taking into account the overall number of university students and annual PhD theses in Romania, UBc could adopt a mid-term target of, at least, doubling the number of PhD students.*

*Recommendations:*



### **The indicator is fulfilled**

Standard B.1.2 Candidates admitted to doctoral studies demonstrate academic, research and professional performance.

*\*general description of the standard analysis.*

**Performance Indicator \*B.1.2.1.** Admission to doctoral study programs is based on selection criteria including: previous academic, research and professional performance, their interest for scientific or arts/sports research, publications in the domain and a proposal for a research subject. Interviewing the candidate is compulsory, as part of the admission procedure.

*- The satisfaction of these requirements is adequately accredited in the internal report and with the annexed documents*

*Recommendations:*

**The indicator is fulfilled**

**Performance Indicator B.1.2.2.** The expelling rate, including renouncement / dropping out of doctoral students 3, respectively 4, years after admission<sup>4</sup> does not exceed 30%.

*- The criterion is met (drop out of 11% vs the requirement of not exceeding 30%) but nothing is said (and is not asked by Aracis indicators) about the average time for graduation*

*- It would be interesting to introduce an indicator related to the average time for graduation*

*Recommendations:*

**The indicator is fulfilled**

## **Criterion B.2. The content of doctoral programs**

*\*general description of the criterion analysis.*

Standard B.2.1. The training program based on advanced university studies is appropriate to improve doctoral students' research skills and to strengthen ethical behavior in science.

*\*general description of the standard analysis.*

**Performance Indicator B.2.1.1.** The training program based on advanced academic studies includes at least 3 disciplines relevant to the scientific research training of doctoral students; at least one of these disciplines is intended to study in-depth the research methodology and/or the statistical data processing.

*- The satisfaction of these requirements is adequately accredited in the internal report and with the annexed documents*

*- Students and Graduates have shown satisfaction with the contents and extension of the teaching program*

*Recommendations:*

**The indicator is fulfilled**

---

<sup>4</sup> 3 years for the doctoral university studies with the duration stipulated at Article 159, paragraph (3), respectively 4 years for the doctoral university studies with the duration stipulated at Article 174, paragraph (3) of the Law of national education No. 1/2011 with subsequent amendments and additions.





**Performance Indicator B.2.1.2.** *At least one discipline is dedicated to Ethics and Intellectual Property in scientific research or there are well-defined topics on these subjects within a discipline taught in the doctoral program.*

- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself

- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Recommendations:

**The indicator is fulfilled**

**Performance Indicator B.2.1.3.** *The IOSUD has mechanisms to ensure that the academic training program based on advanced university studies addresses „the learning outcomes”, specifying the knowledge, skills, responsibility and autonomy that doctoral students should acquire after completing each discipline or through the research activities<sup>5</sup>.*

- The satisfaction of this requirement is adequately accredited in the internal report and with the annexed documents

Recommendations:

**The indicator is fulfilled**

**Performance Indicator B.2.1.4.** *All along the duration of the doctoral training, doctoral students in the domain receive counselling/guidance from functional guidance commissions, which is reflected in written guidance and feedback or regular meeting.*

- The satisfaction of this requirement is adequately accredited in the internal report and with the annexed documents

Recommendations:

**The indicator is fulfilled**

**Performance Indicator B.2.1.5.** *For a doctoral study domain, the ratio between the number of doctoral students and the number of teaching staff/researchers providing doctoral guidance must not exceed 3:1.*

- The satisfaction of this requirement is adequately accredited in the internal report and with the annexed documents and the criterion can be said it is met. But, there is ambiguity associated with the concept of doctoral guidance. The actual number of supervisors is 4 at Ubc; if this figure were used, the criterion would not be met. I understand that the aim of this indicator is to assure that there is no overload in the doctoral guidance provided by the supervisors. In the other side, if there is an evaluation process to be habilitated as PhD supervisor it means that it is considered that not all teaching staff/researchers have the adequate skills or capacities to perform the supervision. This is why, despite what is said and done in the internal report (use of all the teaching staff in the ratio student/staff), I consider that this performance indicator should improve.

- I would recommend to be more specific and clearly establish that the ratio refers to the actual number of supervisors

---

<sup>5</sup> Or by what the graduate should know, understand and to be able to do, according to the provisions of the Methodology of 17 March 2017 regarding inscription and registration of higher education qualifications in the National Register of Qualifications in Higher Education (RNCIS) approved by the Order No.3475/2017 with subsequent amendments and additions.



Recommendations:

**The indicator is partially fulfilled**

### **Criterion B.3. The results of doctoral studies and procedures for their evaluation.**

*\*general description of the criterion analysis.*

*Standard B.3.1. Doctoral students capitalize on the research through presentations at scientific conferences, scientific publications, technological transfer, patents, products and service orders.*

*\*general description of the standard analysis.*

**Performance Indicator B.3.1.1.** *For the evaluated domain, the evaluation commission will be provided with at least one paper or some other relevant contribution per doctoral student who has obtained a doctor's title within the past 5 years. From this list, the members of the evaluation commission shall randomly select 5 such papers / relevant contributions per doctoral study domain for review. At least 3 selected papers must contain significant original contributions in the respective domain.*

*- We were provided with a list of publication of 21 PhD graduates in the last 5 years (Annex 2.37.b1). All graduates have at least one publication in an ISI journal, so we can say that the criterion is met, although the list includes also papers with no reference of impact and no random selection have been made by us.*

*- I would recommend to clearly establish in the ARACIS criterion that ALL papers considered in the list have to provide an internationally accepted indicator of scientific impact.*

Recommendations:

**The indicator is fulfilled**

**Performance Indicator \*B.3.1.2.** *The ratio between the number of presentations of doctoral students who completed their doctoral studies within the evaluated period (past 5 years), including posters, exhibitions made at prestigious international events (organized in the country or abroad) and the number of doctoral students who have completed their doctoral studies within the evaluated period (past 5 years) is at least 1.*

*- The satisfaction of this requirement is adequately accredited in the internal report and with the annexed documents*

Recommendations:

**The indicator is fulfilled**

*Standard B.3.2. The Doctoral School engages a significant number of external scientific specialists in the commissions for public defense of doctoral theses in the analyzed domain.*

*\*general description of the standard analysis.*

**Performance Indicator \*B.3.2.1.** *The number of doctoral theses allocated to one specialist coming from a higher education institution, other than the evaluated IOSUD should not exceed two (2) in a year for the theses coordinated by the same doctoral thesis advisor.*

*- The satisfaction of this requirement is adequately accredited in the internal report and with the annexed documents*

Recommendations:



**The indicator is fulfilled**

**Performance Indicator \*B.3.2.2.** *The ratio between the doctoral theses allocated to one scientific specialist coming from a higher education institution, other than the institution where the defense on the doctoral thesis is organized, and the number of doctoral theses presented in the same doctoral study domain in the doctoral school should not exceed 0.3, considering the past five years. Only those doctoral study domains in which minimum ten doctoral theses have been presented within the past five years should be analyzed.*

*- This criterion applies to doctoral fields with at least ten doctoral theses presented. This is the case of Environmental Engineering at UBC, but in some years, the number of theses have been very low. The criterion is met, by I would suggest to introduce an indicator related to the average number of theses presented per year*

*Recommendations:*

**The indicator is fulfilled**

## **Domain C. QUALITY MANAGEMENT**

*\*general description of domain analysis.*

### **Criterion C.1. Existence and periodic implementation of the internal quality assurance system**

*\*general description of the criterion analysis.*

*Standard C.1.1. There are an institutional framework and procedures in place and relevant internal quality assurance policies, applied for monitoring the internal quality assurance.*

*\*general description of the standard analysis.*

**Performance Indicator C.1.1.1.** *The Doctoral school in the respective university study domain shall demonstrate the continuous development of the evaluation process and its internal quality assurance following a procedure developed and applied at the level of the IOSUD, the following assessed criteria being mandatory:*

- (a) the scientific work of Doctoral advisors;*
- (b) the infrastructure and logistics necessary to carry out the research activity;*
- (c) the procedures and subsequent rules based on which doctoral studies are organized;*
- (d) the scientific activity of doctoral students;*
- (e) the training program based on advanced academic studies of doctoral students;*
- (f) social and academic services (including for participation at different events, publishing papers etc.) and counselling made available to doctoral students.*

*- The UBC Commission for quality assessment and assurance has not yet incorporated the activity of the doctoral school in its internal audit report (Annex 2.42.b). According to what we have been informed in the meeting with the commission, this will be the first year in which the activity of the doctoral school will be analyzed*

*Recommendations:*

**The indicator is fulfilled**



**Performance Indicator \*C.1.1.2.** Mechanisms are implemented during the stage of the doctoral study program to enable feedback from doctoral students allowing to identify their needs, as well as their overall level of satisfaction with the doctoral study program in order to ensure continuous improvement of the academic and administrative processes. Following the analysis of the results, there is evidence that an action plan was drafted and implemented.

- The information provided in the internal report and the annexed links and documents shows that IOSUD of University of Bacau has implemented the adequate mechanisms to have feedback from the PhD students. However, I have found missing in the internal report some section or attached document showing evidence of actions carried out from the information collected in the established feedback mechanisms. I did not find an annex or a reference to an Action Plan, this is why I consider that the indicator is partially fulfilled. It would be interesting to ask for more concrete action plans, establishing definite targets

Recommendations:

**The indicator is partially fulfilled**

## **Criterion C.2. Transparency of information and accessibility of learning resources**

*\*general description of the criterion analysis.*

*Standard C.2.1. Information of interest to doctoral students, future candidates and public interest information is available for electronic format consultation.*

*\*general description of the standard analysis.*

**Performance Indicator C.2.1.1.** The IOSUD publishes on the website of the organizing institution, in compliance with the general regulations on data protection, information such as:

- (a) the Doctoral School regulation;
- (b) the admission regulation;
- (c) the doctoral studies contract;
- (d) the study completion regulation including the procedure for the public presentation of the thesis;
- (e) the content of training program based on advanced academic studies;
- (f) the academic and scientific profile, thematic areas/research themes of the Doctoral advisors within the domain, as well as their institutional contact data;
- (g) the list of doctoral students within the domain with necessary information (year of registration; advisor);
- (h) information on the standards for developing the doctoral thesis;
- (i) links to the doctoral theses' summaries to be publicly presented and the date, time, place where they will be presented; this information will be communicated at least twenty days before the presentation.

- I have been not able to find this information in the English version of the web. Apparently it is available in Romanian only. It would be useful to develop a more complete english version of the web, to be prepared for international actual and potential PhD students/candidates

Recommendations:

**The indicator is fulfilled**



Standard C.2.2. The IOSUD/The Doctoral School provides doctoral students with access to the resources needed for conducting doctoral studies.

*\*general description of the standard analysis.*

**Performance Indicator C.2.2.1.** All doctoral students have free access to one platform providing academic databases relevant to the doctoral studies domain of their thesis.

*- The satisfaction of this requirement is adequately accredited in the internal report and with the annexed documents*

*Recommendations:*

**The indicator is fulfilled**

**Performance Indicator C.2.2.2.** Each doctoral student shall have access, upon request, to an electronic system for verifying the degree of similarity with other existing scientific or artistic works.

*- The satisfaction of this requirement is adequately accredited in the internal report and with the annexed documents*

*Recommendations:*

**The indicator is fulfilled**

**Performance Indicator C.2.2.3.** All doctoral students have access to scientific research laboratories or other facilities depending on the specific domain/domains within the Doctoral School, according to internal order procedures.

*- The satisfaction of this requirement is adequately accredited in the internal report and with the annexed documents*

*Recommendations:*

**The indicator is fulfilled**

### **Criterion C.3. Internationalization**

*\*general description of the criterion analysis.*

Standard C.3.1. There is a strategy in place and it is applied to enhance the internationalization of doctoral studies.

*The indicators on internationalisation do not include the number of international applicants or international registered students. On the other hand, the great majority of PhD graduates in the Environmental Engineering field during the last 5 years seem to be national students (1 of these 21 students is from Republic of Moldova, I was not able to identify other international graduates). I think it would be useful to introduce an indicator related to the average number of international PhD students/graduates*

**Performance Indicator \*C.3.1.1.** IOSUD, for every evaluated domain, has concluded mobility agreements with universities abroad, with research institutes, with companies working in the field of study, aimed at the mobility of doctoral students and academic staff (e.g., ERASMUS agreements for the doctoral studies). At least 35% of the doctoral students have completed a training course abroad or other mobility forms such as attending international scientific conferences. IOSUD drafts and applies policies and measures aiming at increasing the number of doctoral students participating at mobility periods abroad, up to at least 20%, which is the target at the level of the European Higher Education Area.



- description of the facts, the findings from the assessed institution's documents and the evaluation visit itself
- analysis of the facts, the findings from the assessed institution's documents and the evaluation visit itself

Recommendations:

**The indicator is fulfilled/partially fulfilled/not fulfilled.**

**Performance Indicator C.3.1.2.** In the evaluated doctoral study domain, support is granted, including financial support, to the organization of doctoral studies in international co-tutelage or invitation of leading experts to deliver courses/lectures for doctoral students.

- The satisfaction of this requirement is adequately accredited in the internal report and with the annexed documents

Recommendations:

**The indicator is fulfilled**

**Performance Indicator C.3.1.3.** The internationalization of activities carried out during the doctoral studies is supported by IOSUD through concrete measures (e.g., by participating in educational fairs to attract international doctoral students; by including international experts in guidance committees or doctoral committees etc.).

- The satisfaction of this requirement is adequately accredited in the internal report and with the annexed documents

Recommendations:

**The indicator is fulfilled**

#### IV. SWOT Analysis

<p><b><u>Strengths:</u></b></p> <ul style="list-style-type: none"> <li>- The quality of human resources, with a good record of international publications and scientific impact</li> <li>- The good relationship with local/national companies related to environmental engineering</li> </ul>	<p><b><u>Weaknesses:</u></b></p> <ul style="list-style-type: none"> <li>- A low number of doctoral theses</li> <li>- A low number of PhD positions financed by the state</li> <li>- Low remuneration level of doctoral contracts or other stipends</li> </ul>
<p><b><u>Opportunities:</u></b></p> <ul style="list-style-type: none"> <li>- A local and national economical environment favourable to the development of the environmental sector</li> </ul>	<p><b><u>Threats:</u></b></p> <ul style="list-style-type: none"> <li>- The level of public investment in R&amp;D</li> <li>- Not all the domains at UBc have the possibility to develop doctoral studies</li> </ul>

## V. Overview of judgments awarded and of the recommendations

No.	Type of indicator (*, C)	Performance indicator	Judgment	Recommendations
1		<b>A.1.3.1.</b>	<b>Fulfilled</b>	<i>The criterion is met but, given the small dimension of all the PhD Program, I would suggest to increase the minimum number of financed projects and also specify a minimum in terms of their economic volume.</i>
2	*	<b>A.1.3.1 and 2</b>	<b>Fulfilled</b>	<i>The criteria A.1.3.2. and A.1.3.3. are met but in some cases the financial support seems very low (Annex 2.23) I would suggest to establish a minimum amount for this financial support in order to be considered, referred to the annual amount of a state scholarship.</i>
3		<b>A.1.3.1</b>	<b>Fulfilled</b>	<i>All doctoral supervisors in the field of environmental engineering fully comply with the minimum criteria established. Nevertheless, ARACIS could consider increasing significantly this minimum of three and allow or promote interuniversity programs in order to enhance scientific communities of greater dimension when it is difficult to reach</i>

				<i>critical mass in a single university</i>
4		<b>B.1.1.1</b>	<b>Fulfilled</b>	<i>Taking into account the overall number of university students and annual PhD theses in Romania, UBC could adopt a mid-term target of, at least, doubling the number of PhD students</i>
5	*	<b>B.1.2.2</b>	<b>Fulfilled</b>	<i>It would be interesting to introduce an indicator related to the average time for graduation</i>
6	*	<b>B.2.1.5</b>	<b>Partially Fulfilled</b>	<i>Be more specific and clearly establish that the ratio refers to the actual number of supervisors</i>
7	*	<b>B.3.1.1</b>	<b>Fulfilled</b>	<i>Clearly establish in the ARACIS criterion that ALL papers considered in the list have to provide an internationally accepted indicator of scientific impact</i>
8	*	<b>B.3.2.2</b>	<b>Fulfilled</b>	<i>Introduce an indicator related to the average number of theses presented per year</i>
9	*	<b>C.1.1.2</b>	<b>Partially Fulfilled</b>	<i>To ask for more concrete action plans, establishing definite targets</i>
10		<b>C.2.1.1</b>	<b>Fulfilled</b>	<i>To develop a more complete English version of the web, to be prepared for international actual and potential PhD students/candidates</i>
11	*	<b>C.3.1.1</b> <b>C.3.1.2</b> <b>C.3.1.3</b>	<b>Fulfilled</b> <b>Fulfilled</b> <b>Fulfilled</b>	<i>To introduce an indicator related to the average number of international PhD students/graduates</i>



12			<p>To work with regional and national authorities to increase the number of PhD positions publically financed . The new funds Next-Generation EU can give the opportunity to advance in this direction</p>
13			<p>To work with regional and national authorities to increase the remuneration of PhD contracts</p>
14			<p>Consider the required strategy to extend the PhD activity to all departments of UBc (specific multiyear program investment, agreed with the state and/or the region; interuniversity PhD programs, ...)</p>

The recommendations contained in the report shall be resumed in the indicators' analysis. Other general recommendations may be made that do not fit within a particular indicator.

**VERY IMPORTANT!!!** – Each identified weakness must be correlated with at least one recommendation to improve the situation!

## VI. Conclusions and general recommendations

The organization and the definition of the set of indicators is well suited to establish the quality of the doctoral studies. Following them, my **global conclusion** about the doctoral studies in the field of ENVIRONMENTAL ENGINEERING, attain the **adequate level of international quality**.

In this section, I will develop some general observations and recommendations about the field, the IOSUD- University of Bacau and, finally, about the evaluation process itself.

About de the field of ENVIRONMENTAL ENGINEERING

The main observation to be made is that the School/Faculty of Engineering where the Environmental Engineering PhD domain develops, is the main contributor to the scientific production of University of Bacau, according to the university's annual report. From it, I extracted the following table:

Activitatea de cercetare pe anul 2018.						
INDICATORUL	Facultatea					Total Universitate
	Inginerie	Litere	Științe	Științe Economice	SMSS	
Număr cadre didactice la 01.01.2018	56	28	26	24	36	170
1. Număr de proiecte de cercetare/ dezvoltare depuse în competiții naționale în calitate de coordonator	16/5	3	2	3	1	25/5
2. Număr de proiecte de cercetare depuse în competiții internaționale	3(2AUF)	3	3	1	-	10/2AUF
3. Număr de proiecte de cercetare/ dezvoltare câștigate în competiții naționale în calitate de coordonator	2	3	-	1	-	6
4. Număr de proiecte de cercetare / dezvoltare câștigate în competiții internaționale	2	2	-	-	-	4
5. Valoarea contractelor de cercetare derulate în 2018, aferente UBc (RON)	581.897	95.500	60.560	-	-	737.957
6. Număr de proiecte de dezvoltare în derulare în 2018	6	1	3	1	-	11
7. Număr de teze de doctorat susținute în UBc	11	-	-	-	-	11
8. Articole publicate în reviste recunoscute la nivel internațional, cotate ISI (fracțiuni corespunzătoare cerc. UBc și număr întreg lucrări)	24,9/29	2	8	1,25/2	4	40,15/45
9. <u>Recenzii ISI</u>	65	-	-	-	-	65
10. Articole publicate în reviste internaționale necotate ISI, dar indexate BDI	14,63/22	49	29	7	35	134,63/142

The School of Engineering is the only faculty with a PhD program, so obviously it is the only center that reports theses defended during 2018. But, in terms of number of research projects, their economical amount, the number of ISI papers and the number of ISI cites, the distance to the other centers is very big. The figures for the School of Engineering are, in fact, relatively low, indicating that the PhD school should increase significantly its scientific mass, but the figures for other faculties are far for being enough to sustain a PhD program:

In summary, we can say that the School of Engineering is, obviously, the **leading faculty in terms of theses defended per tenured position, but also in all terms related to scientific inputs and outputs. So, this area deserves the highest support from the university, specially in terms of number of PhD positions publicly financed, in order to allow the area to develop even more**

#### About de the IOSUD- University of Bacau

During the visit we were informed about the plans of increasing the domains of the IOSUD with the development of a program in humanities. It is necessary that all fields in the university develop scientifically at the required level to sustain a PhD program, and a defined strategy should be defined and agreed with the ministry in charge. But new programs will develop with great difficulties if the scientific inputs and outputs of the respective fields do not increase significantly.



According to the annual report provided, the total number of theses defended at UBc in 2018 has been 11 (9 in Environmental Engineering). In order to put this figure in national/international perspective, it would be convenient that the university make a benchmarking study and establish its own targets, accordingly. In that respect, it would also be convenient that the ARACIS evaluation includes some new indicators related to quantitative targets, as indicated in the summary of recommendations (number of theses per year, number of WoK paper per year, accumulated or mean impact factors, number of international PhD students per year, and so). In order to me to have a gross idea, I compared the average figures of University of Bacau with those of the country, obtained from the annual ministerial report (<https://www.edu.ro/rapoarte-publice-periodice>), and from those I know from my own university system, that of Catalonia, which is not of a particularly leading European country. In order to establish a basis per comparison, figures are related both to the overall number of university students (Bachelor and Master) and to the population.

Region/Country	Theses	Students	Theses/stud.	Population	Theses/khab.
	2018-19	(headcount)	%	khab 2018	%
Romania (all universities)	1.920	407.373	0,47%	19.530	0,10
Province of Bacau University of bacau	11	6.970	0,16%	585	0,02
Catalonia (public universities)	2.103	171.274	1,23%	7.489	0,28

As it can be seen, **the ratios corresponding to University of Bacau are about one third of the Romanian average**; in order to assign a specific population for University of Bacau, it has been assumed that of the province of Bacau. So, as a first approximation, it seems to me that **the university should establish a mid-term objective of, at least, doubling the number of PhD students**.

Of course, **this is mainly an economical issue**: new resources are needed to finance an adequate number of doctoral contracts. I do not have an overall vision of the university economical capacity, but I assume that the resources are scarce and that it will be needed an increase in the financing coming from the state. This is something always difficult to achieve, but it is indispensable. So, the university, probably along with other public universities, has to work with the public authorities (both regional and national) to increase this financing. The **new funds Next-Generation EU** can give the opportunity to advance in this direction

#### About de the evaluation process and the documentation provided

As a newcomer to the ARACIS evaluation system, I would have greatly appreciated having a very short description of the Romanian university system, not as a set of legal text, but as an operational description, that would have helped in identifying the situation and the role of University of Bacau.

I know that we have been affected by the extraordinary pandemic situation and that an online "visit" has a lot of limitations, but even taking this into account, I found difficult to have enough interaction during the sessions, possibly due to the large number of people involved.



*In online sessions, language has indeed been a problem. The translation has not been agile enough and in some meetings this translation was necessary only for the external expert, while the rest of the attendees spoke naturally in Romanian among themselves. Probably, the number of attendees should be kept to a minimum, in order to minimize this effect.*

*My final observation, and more important, regarding the evaluation process refers to the character of the evaluation: all the indicators are well suited to check that the quality of the PhD education is assured. But hardly an indicator can be found that refers to the appropriate dimensions of the system under study, both in terms of extension and results. Thus, target values are not established or followed for, for example, the annual number of theses, publications, international students or the average or total scientific impact. In that respect, as it is said above, it would also be convenient that the ARACIS evaluation includes some new indicators related to this kind of quantitative targets, which would help to establish the extent to which the university and each doctoral school is fulfilling its mission.*

*Several important issues raised during the evaluation are resumed and some general conclusions are drawn on the quality of the education provided within the doctoral study domain under review; the Experts' Panel also presents general assessments about the institution. Other general recommendations may also be presented, which cannot be related to a specific indicator and have not been presented at point V.*

*A decision is proposed, together with the reasons for granting it (if the Experts' Panel members do not reach a consensus, each of them can propose and argue his/her own decision).*

## **VII. Annexes**

*The following types of documents shall be attached:*

- *The detailed schedule of the evaluation visit – MANDATORY.*
- *The survey questionnaire applied to doctoral students or academic staff in the doctoral study domain under review, the results - optional (e.g., in graphic form) and their interpretation - if applicable.*
- *Scanned documents – any document requested from the IOSUD during the evaluation visit and received, which is not found in the internal evaluation file received before the visit and referred to in the report.*
- *Pictures – if relevant issues are raised regarding the condition of the student residences, cafeterias, premises for teaching and learning activities, library etc.*
- *Screenshots/Print screens of the Doctoral School/IOSUD website proving specific claims in the report, accompanied by the date when they were accessed and saved.*
- *Any other documents relevant to the evaluation process referred to in the report.*