

The External Evaluation Report of a Doctoral Study Domain

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I. Introduction¹

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.).

The Expert Report summarizes the results of the online meetings, on-site visit, and self-evaluation report evaluation. The expert group appreciates the open and constructive atmosphere of all discussions.

1.1 The external evaluation of the Environmental Science doctoral field, within the Doctoral School of Environmental Science at IOSUD level - Babeș-Bolyai University of Cluj-Napoca (IOSUD-UBB), took place between November 2-5, 2021.

The type of evaluation: Periodic evaluation of the **Environmental Science** doctoral field

The period of the evaluation visit: 2.11.2021 – 5.11.2021

Composition of the Experts Committee:

1	Coordinator: Prof. Univ. Dr. Lucica Tofan	„Ovidius“ University of Constanța
2	International expert: Prof. Univ. dr. Kalambura Sanja	University of Zagreb, Croatia
3	PhD student: Lupu Giovanina-Iuliana	Politehnica University of Bucharest

The evaluation was carried out in a hybrid system, both through online and on-site meetings. The online meetings were scheduled for November 2, 3, and 5, 2021.

On November 4, 2021, the material, didactic and research resources was visited, through face-to-face meetings, within the Faculty of Environmental Science and Engineering / UBB with the Expert Coordinator prof. univ. dr. Lucica Tofan. The contact person from Babeș-Bolyai University in Cluj-Napoca was Prof. dr. Laurențiu-Călin Baci – the director of the Doctoral School of Environmental Science.

1.2. The Doctoral School of Environmental Science – SDSM

Details about the Doctoral School / Doctoral Schools to which the doctoral study field belongs (number of PhD supervisors, number of students, institutional context, short history, etc.);

The Doctoral School of Environmental Science operates within the Faculty of Environmental Science and Engineering, which was established in 2003, according to HG 693 of June 12, 2003 published

¹ Each time when applicable the information shall be presented gender-wise.



in MO 466/ June 30, 2003, having the specializations Environmental Geography, Laboratory techniques in environmental protection (chemistry), Environmental physics. Subsequently, the specialization of Environmental Science and a specialization in the field of Environmental Engineering, called Ecological and Biotechnical Engineering Systems, were developed. Since 2012, within the Faculty of Environmental Science and Engineering, the field of Environmental Engineering has been accredited.

The Environmental Science doctoral field was assigned by the Order of the Minister of Education, Research and Youth no. 4969 of 31.07.2008 to Babeş-Bolyai University due to its status as an institution organizing doctoral studies (IOSUD). As there were no PhD supervisors in the field of Environmental Science at that time, the PhD supervisors had the accreditation to conduct doctorates in the fields of Geology (Prof. Dr. Iustinian Petrescu, Prof. Dr. Vlad Codrea, Prof. Dr. Şerban-Nicolae Vlad), Physics (Prof. Dr. Constantin Cosma, Prof. Dr. Dumitru Ristoiu), Chemistry (Prof. Dr. Emil Cordoş). The profile of PhD supervisors has become increasingly oriented towards the field of Environmental Science, with the emergence of this doctoral field. In 2009, the Order of the Minister the Education, Research and Innovation no. 4697/14.08.2009 was implemented, through which 5 professors received the position of PhD supervisor in the field of Environmental Science: Prof. Dr. Laurenţiu-Călin Baciş, Prof. Dr. Alexandru Ozunu, Prof. Assoc. Dr. Eugen Gurzău, Prof. Dr. Constantin Cosma, Prof. Dr. Dumitru Ristoiu. The last two gave up the field of Physics, becoming PhD supervisors in the field of Environmental Science. Prof. Dr. Iustinian Petrescu died in 2008, Prof. Dr. Şerban-Nicolae Vlad retired, and Prof. Dr. Vlad Codrea transferred in 2014 to the Doctoral School of Geology, therefore currently, all PhD supervisors conduct doctorates in the field of Environmental Science.

The PhD offered in the field of Environmental Science is scientific. Following the finalizing of the doctoral studies, the graduates will obtain the diploma and the title of doctor in sciences, in the field of Environmental Science.

The institution organizing doctoral studies:

Babeş-Bolyai University of Cluj-Napoca (UBB)

The Doctoral school evaluated:

The Doctoral School of Environmental Science

The field of doctoral studies:

Environmental Science

Number of doctoral fields in UBB:

31

Number of doctoral schools in UBB:

31

List of doctoral schools in UBB:

1. Mathematics and Computer Science
2. Physics
3. Chemistry
4. Chemical Engineering
5. Integrative Biology
6. Geology
7. Environmental Science
8. Geography
9. History, Civilization, Culture
10. Population studies and history of minorities
11. Philosophy
12. International Relations and Security Studies
13. European Paradigm
14. Evidence-based assessment and psychological interventions
15. Applied Cognitive Psychology
16. Education, Reflection, Development
17. The Didactics. Tradition, development, innovation
18. Sociology



19. Administration and Public Policy
20. Communication, public relations and advertising
21. Political and Communication Sciences
22. Linguistic and Literary Studies
23. Hungarology Studies
24. Law
25. Physical Education and Sport
26. Theatre
27. Economics and Business Administration
28. Orthodox Theology "Isidor Todoran"
29. Theology "Ecumene"
30. Religion, culture, society
31. Engineering School from Resita (from the UBB University Centre Resita)

Number of students:

The number of the PhD students admitted to the Doctoral School of Environmental Science in the last 6 academic years is shown in the following table:

Academic year	No. of admitted PhD students - budgeted	No. of admitted PhD students - with fee
2015-2016	10	1
2016-2017	9	1
2017-2018	10	3
2018-2019	8	0
2019-2020	7	0
2020-2021	4	0

Number of the PhD supervisors:

Within the doctoral school of Environmental Science, 7 PhD supervisors are active (as it appears from the Self-Assessment Report, page 51).

Number of PhD students:

Within the Doctoral School of Environmental Science, the total number of enrolled PhD students fluctuated according to the data in the table below:

Academic year	No. of PhD students - budgeted	No. of PhD students - with fee
2015-2016	28	3
2016-2017	29	2
2017-2018	26	5
2018-2019	26	1
2019-2020	24	3
2020-2021	17	1

The results of the scientific research activity are capitalized by participating to scientific conferences in the country and/or abroad, publishing articles in journals indexed in Web of Science or BDI and books in publishing houses from the country and abroad. The PhD supervisors affiliated to SDSM have the position of director/partner and member in numerous national and international research contracts/grants (Annex A 1.3.1 to the Self-Assessment Report).

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;
 - 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.

The External Institutional Evaluation Process is organized by ARACIS and is carried out in the following steps: the Doctoral School submits its self-evaluation report which clearly and explicitly formulates the Doctoral School's strategy and objectives as well as its quality management system and educational activities. The Doctoral School gives an overview of its resources, facilities and responsibilities. Additional documentation and annexes are also submitted.

The Evaluation Panel for a peer review is nominated. The complete documentation submitted by the Doctoral School is forwarded to the expert group. Due to the worldwide COVID situation, the online meetings with - the representatives of the institution and of the Council for Academic Doctoral Studies (CSUD), with the contact person for the doctoral study domain under review, with the director of CSUD/ Doctoral School, with IOSUD academic staff of Doctoral School, with the academic staff corresponding to the doctoral study domain, with PhD students, with the members of the Ethics Commission, with the graduates of the respective doctoral study domain, with the Directors/persons in charge of the research centers/laboratories within the doctoral study domain, with the Commission for Quality Evaluation and Assurance (CEAC) members/Quality Assurance Department, with employers of the doctoral graduates were performed.

The on-site visit of the expert group takes place. During the on-site visit, the consistency of the submitted documentation is verified. Additional aspects, which might not be covered by the written documentation, are also reviewed. Following the online meetings and visit, an Expert

The report is produced; it sums up the key aspects and outcomes of the visit and the reviewed



documents. The University can comment on the Expert Report.

In the external evaluation process of the doctoral field of Environmental Science, the following methods were used:

- The analysis of the internal evaluation Report (REI) and its annexes;
The internal evaluation Report of the doctoral study field of Environmental Science and its annexes were available in electronic format before the start of the evaluation visit. This documents contained the information necessary to create an overview of the entire activity carried out within the evaluated field.
- The analysis of documents made available by the IOSUD - UBB, in physical format, during the evaluation visit (if such documents have been requested);

During the visit made to the Babeş-Bolyai University of Cluj-Napoca, a series of documents in physical format were requested, in order to verify their existence and veracity: anti-plagiarism verification reports of the PhD theses; reports of the meetings of the Doctoral School Council; reports of the meetings for the defence of the PhD theses; grading registers; financial supporting documents for the expense account of PhD student applications, articles and conferences; papers/publications of the PhD students, etc.

- The analysis of documents, data and information available on the IOSUD/Doctoral School(s) website, in electronic format;

The analysis of documents, data and information available on the IOSUD-UBB/SDSM website in electronic format, was made; the Institute for Doctoral Studies <https://doctorat.ubbcluj.ro/ro/> and the Doctoral School of Environmental Science https://enviro.ubbcluj.ro/specializari_category/doctorat/.

- 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;
 - the institution's library;
 - research centres;
 - the Career Counselling and Guidance Centre;
 - lecture halls for students;
 - the student residences;
 - the student cafeteria;
 - sports ground etc.;

On 04.11.2021, a visit was made to the buildings of Babeş-Bolyai University of Cluj-Napoca, the headquarters of IOSUD and SDSM, in order to analyse the administrative and patrimonial capacity. The following facilities were visited: classrooms, laboratories, research centres, the library of the institution, reading rooms for students, the student cafeteria.

During the visit, meetings and discussions with different categories of people involved in the teaching and research process were established.

- Meeting/discussions with the PhD students of SDSM present in the visited research laboratories;
- Meeting/discussions with the members of the management of IOSUD and SDSM;
- Meeting/discussions with the PhD supervisors in the visited facilities;
- Meeting/discussions with the representatives of the various structures of the IOSUD/Doctoral School(s):
 - Career Counseling and Guidance Center;
 - Secretariat;
 - Various departments/administrative offices (Social/ Student dorms – Cafeteria), etc.;



III. Analysis of ARACIS's performance indicators

Domain A. INSTITUTIONAL CAPACITY

**general description of domain analysis.*

The Doctoral School of Environmental Science is among the 31 doctoral schools operating within IOSUD-UBB. This doctoral school is structured and operates according to the existing legislation. Within the Doctoral School of Environmental Science, doctoral studies are organized and carried out in the doctoral field of Environmental Science, which is subject to periodic evaluation. Within the institution organizing doctoral studies, IOSUD-UBB, there are all the institutional, administrative, and managerial structures and the financial resources, which are necessary for the proper functioning of this doctoral school. Thus, IOSUD-UBB has implemented the efficient functioning mechanisms provided in the specific legislation regarding the organization of doctoral studies, by the existence of specific regulations and their application within the Doctoral School of Environmental Science and, implicitly, in the field of Environmental Science, having specific logistical resources, ensuring that the financial resources are optimally allocated and obtaining other sources of funding, besides the government funding, to support the activity of the PhD students (doctoral scholarships through institutional development programs and/or human resource development).

The quality of human resources within the doctoral field of Environmental science is ensured by qualified and motivated staff with the necessary experience to carry out the doctoral studies program. A good international visibility of the scientific activity carried out by the PhD supervisors within the doctoral field of Environmental Science is ensured.

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

**general description of the criterion analysis.*

The entire didactic, research, managerial and administrative-financial activity within UBB is carried out in compliance with the national legislation in the field and the internal regulations approved by the UBB Senate.

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.*

The institution organizing doctoral studies has specific regulations that are applied within IOSUD and within the doctoral schools. These include: the Institutional regulation regarding the organization and the carrying out of the doctoral studies (available online and presented in the attached documents), the Regulation regarding the organization and the carrying out of the doctoral studies – the doctoral school of Environmental Science, the Methodology for the elections at the CSUD level and at the level of each doctoral school, the Methodology regarding the competition for the position of CSUD director, the Methodology regarding the organization and carrying out of the doctoral studies (including admission and completion of studies), the Methodology regarding the organization and carrying out the process of obtaining the habilitation certificate and the equivalence of the doctoral degree obtained in other states, internal procedures for establishing the advanced academic training program. Within the IOSUD, regular meetings are organized when it is necessary to debate and adopt important decisions. This information emerges from the Self-Assessment Report, as well as from the assessment activities that were carried out, and through which online meetings took place between the committee of expert evaluators and the director of the Doctoral School of Environmental Science.

The Doctoral School of Environmental Science (SDSM) is organized and operates in accordance with a set of reference values: professionalism, vocation, integrity, dedication, social responsibility. SDSM stands out through an offer of diversified, dynamic and especially interdisciplinary doctoral research topics, in connection with the latest approaches in the field.



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

Within the Doctoral School of Environmental Science there are specific regulations regarding:

a) The internal regulations of the Doctoral School

<https://doctorat.ubbcluj.ro/wp-content/uploads/2019/03/regulament-st-mediului.pdf>;
<https://doctorat.ubbcluj.ro/wp-content/uploads/2021/10/Regulament-actualizat-Stiinta-mediului.pdf>

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

- The Methodology/regulation for conducting elections in doctoral schools

https://www.ubbcluj.ro/ro/infoubb/alegeri/files/alegeri2020/Regulament_alegeri_Senat.pdf

<https://doctorat.ubbcluj.ro/wp-content/uploads/2019/03/regulament-st-mediului.pdf>

<https://doctorat.ubbcluj.ro/wp-content/uploads/2021/04/Anexa-la-HS-nr.-46-Regulament-UBB-de-organizare-si-desfasurare-studii-de-doctorat.pdf>

<https://senat.ubbcluj.ro/wp-content/uploads/2020/09/Regulament-de-alegere-a-reprezentatilor-studentilor-UBB.pdf>

Methodology for student election – Annex 1.1.1-3.

Evidence of their development:

Report regarding the director election – Annex A 1.1.1-1

Report regarding the students election – Annex A 1.1.1-2

c) the Methodologies for organizing and conducting doctoral studies

- Methodology for the admission of the PhD students:

<https://doctorat.ubbcluj.ro/wp-content/uploads/2021/09/Anexa-1-la-HS-nr.-47-privind-aprobarea-calendarului-%C8%99i-actaliz%C4%83rii-Metodologiei-de-admitere-la-studiile-de-doctorat-2021-1.pdf>

<https://doctorat.ubbcluj.ro/wp-content/uploads/2021/09/HS-nr.-47-privind-aprobarea-calendar-%C8%99i-actualizare-Metodologie-admitere-doctorat-2021.pdf>

- Methodology for finalizing the doctoral studies

<https://doctorat.ubbcluj.ro/ro/pregatirea-si-desfasurarea-sustinerii-publice-a-tezei-de-doctoratin-conformitate-cu-codul-studiilor-universitare-de-doctorat/>

If it is impossible to defend the PhD theses in person, due to the pandemic context, the finalizing of the studies is regulated by UBB Senate Decision 5939/2020 and UBB Senate Decision



11669/2020

https://senat.ubbcluj.ro/wp-content/uploads/2020/04/Hotarare-5939_Regulament-studii-doctorat.pdf

https://doctorat.ubbcluj.ro/wp-content/uploads/2020/04/Anexa-3-la-Regulamentul-de-organizare-%C8%99i-desf%C4%83%C8%99urare-a-studiilor-de-doctorat_final.pdf

<https://doctorat.ubbcluj.ro/wp-content/uploads/2021/04/HS-nr.-11669-privind-completarea-Anexei-3-a-Regulamentului-de-organizare-%C8%99i-desf%C4%83%C8%99urare-a-studiilor-de-doctorat-la-UBB.pdf>

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

At Babeş-Bolyai University, the mechanisms for recognizing the position of PhD supervisor, the teaching positions, the doctoral degree and the title of doctor, obtained in accredited university institutions from abroad are established through a specific procedure, described in the document:

https://senat.ubbcluj.ro/wp-content/uploads/Metodologie_recunoastere-.pdf

e) Functional management structures

The management of the Doctoral School of Environmental Science is provided by the Doctoral School Council, which has the following structure (<https://enviro.ubbcluj.ro/specializari/scoala-doctorala-stiinta-mediului/>):

Director of the Doctoral School of Environmental Science:

Prof. dr. Laurențiu-Călin Baci - Faculty of Environmental Science and Engineering, Babeş-Bolyai University;

Members of the Doctoral School of Environmental Science Council:

Conf. dr. Delia Gligor - Faculty of Environmental Science and Engineering, Babeş-Bolyai University;

Prof. dr. Tiberiu Rusu - Faculty of Environmental Science and Engineering, Babeş-Bolyai University;

PhD student Valeria Pop (Bob) - Faculty of Environmental Science and Engineering, Babeş-Bolyai University;

The Doctoral School Council meets periodically to discuss current issues of the Doctoral School. The decisions of the Doctoral School Council are recorded in the reports of the meetings (Annex A.1.1.2). During the pandemic, some meetings were held online and the documents were distributed by email.

f) The contract for doctoral studies

After being admitted to the doctoral studies, each enrolled PhD student signs a contract of studies, the format of which is updated annually. The contract model, valid at the time of evaluation is available at:

https://enviro.ubbcluj.ro/wp-content/uploads/2021/05/st-mediului_Contract_de_studii_2021.pdf

g) Internal procedures for the analysis and approval of proposals regarding the training for doctoral study programs

The proposals regarding the training for doctoral study programs are discussed annually in the CSD meetings. The curricula, for all the doctoral schools in UBB, considering the fact that the PhD students have the possibility to choose subjects from different schools, can be



consulted at:

https://doctorat.ubbcluj.ro/wp-content/uploads/2021/10/2021-2022-Doctorat-Planuri_de_invatamant_var1.pdf

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

The performance indicator regarding the existence of specific regulations and their application within the SDSM doctoral school, which serves the field of doctoral studies in Environmental Science, is fulfilled. All necessary tools are set and applied at doctoral level.

Recommendations: There are no 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.*

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

The Regulation of the Doctoral School of Environmental Science include the following relevant provisions:

- (1) The Regulation of the Doctoral School sets out the principles of organization and operation of the doctoral school (section I) and describe the organizational structure of the doctoral school (section II).
- (2) The Regulation of the Doctoral School is elaborated by the doctoral school council, by consulting all the PhD supervisors, which are members of the respective school, in compliance with the Institutional Regulation regarding the organization and the carrying out of the doctoral studies programs at IOSUD level [Art 29, UBB Regulation];
- (3) The Regulation of the Doctoral School is approved by universal, direct, secret and equal vote of the absolute majority of the PhD supervisors, which are members of the respective school [Art 29, UBB Regulation];
- (4) The Regulation of the Doctoral School is approved by CSUD [Art 29, UBB Regulation];
- (5) The Regulation of the Doctoral School establish mandatory criteria, procedures and standards regarding at least the following aspects:
 - a) the acceptance of new PhD supervisor members, as well as regulations regarding the withdrawal of the membership of PhD supervisor [Art 10; Art 11];
 - b) the mechanisms based on which, the decisions regarding the opportunity, structure and content of the training program based on advanced academic studies are taken [art. 31];
 - c) the procedures for replacing the PhD supervisor of a certain PhD student and the procedures for mediating conflicts [Art. 73, UBB Regulation];
 - d) the conditions in which the doctoral program can be interrupted [art. 7, UBB Regulation];
 - e) methods to prevent the fraud in scientific research, including plagiarism; [Art 70; Annex 1, UBB Regulation];
 - f) ensuring access to research resources; [Art. 64, UBB Regulation];
 - g) the attendance obligations of the PhD students, according to a methodology developed by the Ministry of Education, Research, Youth and Sports [Art 27].
- (6) The Regulation can also be applied in the case of doctoral study programs carried out in co-supervision, if so decided by the partnership agreement [Art. 11, UBB Regulation].

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

The Regulation of the Doctoral School includes mandatory criteria, procedures and standards for the aspects specified in art. 17 para. (5) of the Government Decision no. 681/2011 on the approval of the Doctoral Studies Code, with subsequent amendments and completions.



Recommendations: There are no recommendations.

The indicator is fulfilled.

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

**general description of the standard analysis.*

The PhD students and their activity within the doctoral study program, are recorded through personal files which are available also in electronic form. The storage of data regarding the doctoral program of the PhD students is performed by the Institute for Doctoral Studies.

UBB has one of the most efficient programs for verifying similarities at international level.

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.*

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

The storage of data regarding the PhD students is performed using the following logistical resources:

- **AcademicInfo**, the UBB platform, implemented in 2007 (Annex 1.3.54). The AcademicInfo platform contains the records of PhD students enrolled in doctoral studies: personal data, registration number, and information regarding their doctoral program.
- **Unique Matriculation Register (rei.gov.ro)** includes information stored in the national platform, regarding the personal data of the PhD students, data about their doctoral status, interruptions, extensions, extension periods, etc. (Annex 1.3.55).

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

The IOSUD – UBB has an adequate information system to record PhD students and their academic background. Also, the relevant information are registered in the Unique Matriculation Register, which operates at national level.

Recommendations: There are no 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.*

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

According to the current regulations, all PhD theses are subject to similarity verification and detection of plagiarism before their presentation to the guidance committee. Starting with 2016, IOSUD - UBB purchased and renewed annually the license of the program, in order to verify the percentage of similarity in all PhD theses. The programs that are used for similarity detection are **iThenticate** and **Turnitin** (Annex 1.2.16-1, Annex 1.2.16-2). The similarity verification is done by the Doctoral School together with the Institute for Doctoral Studies from UBB.

The self-assessment report includes an example of similarity analysis for a PhD thesis.

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

As it results from the self-assessment file and from the discussions held during the visit, all academic staff have access to the Turnitin program. With the consent of the PhD supervisors, the PhD students have the possibility to verify the degree of similarity of the materials they write. All thesis are checked before the submission to the guidance committee.



The use of plagiarism tools is certainly welcome and should be applied.

Recommendations: There are no 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.

**general description of the standard analysis.*

Within the SDSM, there is an increased interest for the optimal use of the financial resources. The budgetary resources were supplemented with revenues from grants and research contracts, and most of the PhD students participated in research projects as team members. It is necessary to increase the financial resources used for the professional training of the PhD students.

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.*

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

The SDSM members were involved in 68 research contracts of different types: projects funded by European funds for Romania (POCA, POS), projects funded by the European Commission within research programs (FP7, H2020), projects funded by the Romanian Government (PCCA, PCCDI), research/consulting contracts with third parties.

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

A very good ability of the PhD supervisors to attract additional financial resources was found, thus contributing to the good training of the PhD students.

A very good commitment in the implementation of the research projects on a international and national level.

Recommendations:

- Strengthen cooperation on projects in the region
- Develop collaboration on projects with an emphasis on inclusion like re use initiatives.

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%.*

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

According to the Self-Assessment Report, 27 PhD students, corresponding to a percentage of 61% of the total PhD students, were involved in research contracts or benefited from other funding sources, for a period of at least 6 months. Of these, 5 were involved in SOP-HRD contracts, and another 22 were involved



in research/development/consulting contracts.

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

A very good involvement of the PhD students in the research/innovation/consulting activity was found. A percentage of 61% of the PhD students benefited from additional funding from contracts, for a period of at least 6 months.

Recommendations:

- increase the number of students in projects
- increase the visibility of student inclusion in real environmental projects
- Science for life – students on doctoral study program ready for real life project.

The indicator is fulfilled.

Performance Indicator *A.1.3.3.² *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.).*

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

During the evaluated period, the total amount spent on PhD students' training activities, which consist of conferences participation, publication of articles and other forms of dissemination of the results, represents 4.35% of the total doctoral grants and the amounts collected from tuition fees.

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

During the evaluation period, the amount of 42541.43 lei was spent for students' participation in professional training activities/ The minimum threshold of 10% for the use of the amounts from doctoral grants and tuition fees is not reached. Although the PhD students participated in such forms of training, the payments were made in many cases from research contracts of various types, rather than from doctoral grants.

Recommendations:

It is recommended to promote among the PhD students, the participation in training actions, using the resources available through doctoral grants.

Increase the number of students participating in the grant scheme true real involvement, true better connection with employers and market. Better promotion of international activities and long life programs.

The indicator is partially fulfilled.

² 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

**general description of the criterion analysis.*

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

**general description of the standard analysis.*

In accordance with the existing documents in the Self-Assessment Report of the Environmental Science field and with the findings made on the spot during the visit to the evaluated institution IOSUD-UAIC, it is concluded that the existing research infrastructure corresponds in terms of quality and it is able to support the activities that are specific to doctoral studies.

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.*

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

The PhD students enrolled in doctoral studies in the field of Environmental Science benefit from the research infrastructure existing within the IOSUD-UBB and the Faculty of Environmental Science and Engineering (Self-assessment report, pp. 41-50). The self-evaluation report records, and the field visit confirms the existence of facilities and resources necessary for the development in good conditions of the doctoral studies. The facilities consists of lecture and seminar rooms, laboratories, research centres, research stations. The lecture rooms have the necessary technical equipment for communication (video projector, computer, smart board, projection screen, video conferencing equipment, etc.). There is wireless internet access in the educational spaces. The didactic and research laboratories have useful equipment for the training of the PhD students. There are computer labs equipped with computer technology and specific software products. Among the software, there are EFFECTS - for the analysis of the effects of industrial accidents, RISKCURVES - quantitative analysis of chemical industrial risk, SEVEX View - hazardous materials management, ALOHA - air pollution, Visual Modflow - transport of contaminants in groundwater, AERMOD - air pollutants dispersion, SAHANA EDEN - disaster management, LABVIEW - applications that require testing, measurement and control.

The research infrastructure is presented on the ERRIS platform, where two units within the faculty are present: The Research Institute for Sustainability and Disaster Management based on High Performance Computing (ISUMADDECIP) and ACTRIS-RO UBB. ISUMADDECIP has high performance computing systems, software for modelling, physical and chemical analysis equipment, communication systems. ACTRIS-RO UBB is an infrastructure for the study of physical and chemical processes in the atmosphere.

The Centre for Applied Environmental Research (CERAM) contains an Environmental geochemistry laboratory and a Radon testing laboratory.

The Institute for Interdisciplinary Research in Bio-Nano-Sciences (ICI-BNS) has specialists and high-performance equipment, to which the PhD students have access.

The Danubius research base was recently set up in Coronini, on the banks of the Danube, where the Faculty of Environmental Science and Engineering has installed an environmental analysis laboratory.

The PhD students have access to the Central University Library (BCU) and its branches, based on the library card. The Library of Environmental Science, as a branch of BCU, contains specific publications dedicated to the study of the environment.

The PhD students have access to databases subscribed through the ANELIS + program, including: EBSCO, Springer, Science Direct, ProQuest, Thomson ISI, Scopus, etc.

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



The education and research facilities correspond in terms of quality, surface, equipment, technical condition, volume, safety and hygienic-sanitary principles. The laboratories are equipped with high-performance equipment, which facilitates the experimental activity of the PhD students. The students have access and are included in the research teams of high-performance research structures (ISUMADECIP, CERAM, ACTRIS-RO UBB, ICI-BNS), where they can perform the experimental part of their theses at a high level. The access to documentation is established through an extensive network of libraries and international databases, which provide current international materials.

Recommendations: There are no 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.*

The PhD supervisors within the doctoral field of Environmental Science have the necessary experience to carry out the doctoral study program. The disciplines in the training program are held by academic staff who have the position of PhD supervisor with proven expertise in the field of the taught subjects.

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.*

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

The Doctoral School of Environmental Science has 7 PhD supervisors. Of these, 4 meet the necessary and mandatory standards for obtaining the habilitation certificate. The scientific activity of the PhD supervisors is presented in Annex A.3.1, including the degree of satisfaction of the criterion regarding the fulfilment of the CNATDCU minimum standards.

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

The degree of fulfilment of CNATDCU standards by the PhD supervisors from the Doctoral School of Environmental Science is presented in the table below:

N0.	PhD supervisor	Criterion 1			Criterion 2	Criterion 3		Fulfilled
		Art ISI	Cumulated AIS	Art BDI	H Index (ISI)	Projects	Amount, lei	
	Requirement		>3.5	3	>4	2	>100.000	
1	Prof. Baciu Călin	32	5,491	14	16	8	>100.000	YES
2	Conf. Beldean Simion	31	4,117	10	7	5	>100.000	YES
3	Prof. Gabor Alida	28	7,37	62	21	4	>100.000	YES
4	Assoc. Prof. Gligor Delia	12	3,51	4	14	3	>100.000	YES
5	Prof. Guzau Eugen	24	1,473	14	27	14	>100.000	Partially
6	Prof. Alexandru	13	2,82	37	11	12	>100.000	Partially



	Ozunu								
7	Prof. Ristoiu Dumitru	14	3,068	24	12	6	>100.000	Partially	

Out of the 7 active PhD supervisors, 4 meet the CNATDCU minimum standards for obtaining the habilitation certificate, and 3 partially meet the standards.

Recommendations: At the moment, the criterion is met, but it is necessary to assess the need for staff in case of an increase in the number of students.

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.*

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

Out of the 7 active PhD supervisors, 5 have permanent contracts within UBB: Prof. Dr. Călin Baci, Prof. Dr. Alida Gabor, Prof. Dr. Alexandru Ozunu, Assoc. Prof. Dr. Delia Gligor, and Assoc. Prof. Simion Beldean.

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

Following the examination of the Self-Assessment File, it is found that 5 out of 7 active PhD supervisors (representing 71%) have permanent employment contracts within UBB.

Recommendations: There are no 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.*

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

The disciplines within the training program based on advanced academic studies are held by Prof. Dr. Călin Baci, Prof. Dr. Alexandru Ozunu, Associate Professor CSI Dr. Eugen Gurzău, and during the evaluated period, one of the disciplines was held by Prof. Dr. Lucian Copolovici. The course holders are recognized specialists in their fields of reference.

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

The disciplines in the training program based on advanced doctoral studies are held by specialists recognized in their area of competence, having the academic degree of Professor / CS I.

Recommendations: There are no 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 programs³ does not exceed 20%.*

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

According to the Self-Assessment Report, within the Doctoral School of Environmental Science, at the time of the internal evaluation report development, all the PhD supervisors coordinate simultaneously at most 8 PhD students enrolled in doctoral studies (which are within the 3-year stage and in extension periods, legally granted) (Table 2.3 - Self-assessment report).

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

Within the Doctoral School of Environmental Science, there is no PhD supervisor who coordinates more than 8 PhD students which are within the 3-year stage and in extension periods.

Recommendations: There are no 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.*

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

The PhD supervisors affiliated to the Doctoral School of Environmental Science carry out research activity disseminated through publications, and the works are inventoried in Annex A.3.1. All 7 PhD supervisors have at least 5 Web of Science indexed publications. The publications are visible in Publons, ResearchGate and Google Scholar accounts. The number of citations of each PhD supervisor is presented in table 2.4 - Self-evaluation report.

The PhD supervisors are members of prestigious professional associations in the country and abroad and they are members in editorial teams or reviewers of journals in the main stream of publications.

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

³ 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.



According to the Self-Assessment Report and its annexes, it is found that all 7 PhD supervisors affiliated to the Doctoral School of Environmental Science have at least 5 WoS indexed publications and have obtained international recognition for their scientific activity.

Recommendations: There are no recommendations.

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.*

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

According to the documents presented in the Self-Assessment Report, out of the total of 7 active PhD supervisors, 6 have achieved in the last 5 years at least 25% of the score required by the CNATDCU minimum standards. Detailed data are included in Annex A 3.1.

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

The PhD supervisors affiliated to the Doctoral School of Environmental Science are carrying out active research, 6 out of the total of 7 have achieved at least 25% of the minimum qualification standards in the period subject to evaluation.

Recommendations: There are no 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.*

The Environmental Science doctoral domain has the capacity to attract candidates from outside IOSUD-UBB. It also has the capacity to attract more PhD students than the number of places financed from the state budget.

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.*

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

According to the information from the Self-Assessment Report, the ratio between the number of master's graduates from other education institutions in the country and abroad, who have entered the competition for admission to PhD studies during the evaluated period and the number of positions financed



from the state budget, was as follows: 2015 - 0.0; 2016 - 0.25; 2017 - 0.14; 2018 - 0.11; 2019 - 0.66. The overall ratio for the period of study results from the number of external candidates (9), compared to the total number of positions (40) and it is 0.22.

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

It is found that within the doctoral school there is the capacity to attract graduate candidates from other higher education institutions, being exceeded the value of 0.2 external candidates compared to the number of positions.

Recommendations: There are no 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.*

According to the information recorded in the Self-Assessment Report and the discussions that took place during the visit, the students enrolled in doctoral studies demonstrate academic performance throughout the doctoral studies period.

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.*

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

The admission to doctoral studies is made according to Admission Methodology, which is updated annually at the IOSUD level. The admission contest to doctoral studies comprises at least two tests, of which a written specialty test, based on the previously announced themes and an interview. The interview analyse the scientific activities of the candidate, his/her aptitudes for research, the theme proposed for the doctoral thesis and the previous achievements of the candidate.

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

The admission to doctoral studies tests the academic, research and professional performance of the candidates, the scientific activities of the candidate, the previous achievements and the theme proposed for the doctoral thesis.

Recommendations: There are no 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 admission⁴ does not exceed 30%.*

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

The dropout rate in the first 3 years from the admission of the candidates for doctoral studies at the Doctoral School of Environmental Science is presented in table below and in Annex B.1.2.2. The following

⁴ 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.



values were recorded:

Academic year	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	Percentage
Dropout rate (no. of PhD students)	0	2	2	1	4	20%

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

The expulsion/dropout rate of the PhD students is 20%, the criterion being met.

Recommendations: There are no 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.*

The training program based on advanced doctoral studies has the role to enrich the PhD student's scientific perspective and to provide them with additional support for the individual research they are carrying out during the doctoral studies. The PhD students in agreement with the PhD supervisor, have the possibility to opt both for the courses offered by the Doctoral School of Environmental Science, and for a very wide range of disciplines offered by other doctoral schools within IOSUD.

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.*

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

The PhD students in agreement with the PhD supervisor, can choose at least 3 courses from the offer of the doctoral schools within IOSUD-UBB. The offer of the Doctoral School of Environmental Science includes the disciplines (Annex B 2.1.1, Annex B 2.1.3):

- *The specificity of environmental research*, holder Prof. dr. Călin Baciu
- *The assessment of risk, vulnerability and environmental crises*, holder Prof. dr. Alexandru Ozunu
- *Health risk assessment in relation with environmental factors*, holder Prof. dr. Eugen Gurzău

The discipline *The influence of environmental factors on ecosystems* was offered during the assessed period, but at present it is no longer available due to the fact that the course holder, Prof. Dr. Lucian Copolovici has stopped the collaboration with SDSM.

The discipline *The specificity of environmental research* contains the fundamental elements of the research methodology, with application to the environmental field.

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

The doctoral school of Environmental Science, together with the other doctoral schools within the IOSUD-UBB offers a wide range of courses that contribute to the professional training of the PhD students and provides support for the individual research program of each PhD student. The discipline *The specificity*



of *environmental research* contains the fundamental elements of the research methodology, with application to the environmental field.

Recommendations: It is important to create the courses according to the interest and importance for the doctoral study and not according to the people who teach it. From previous experience, this is exactly the case with the weak point in the organization.

The indicator is fulfilled.

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

The discipline *The specificity of environmental research* includes a consistent section on Ethics and Academic Integrity (Annex B.2.1.2). The fundamental principles and the historical development of academic and research ethics are presented, as well as the way in which the authors and co-authors of a scientific contribution are established, the notions of similarity, plagiarism, antiplagiarism, intellectual property are discussed, in order to avoid any violation, voluntary or involuntary, of the principles of ethical conduct in research. Similarity detection software systems are described, analysing their benefits and limitations.

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

Within the discipline *The specificity of environmental research* there is an extensive section dedicated to research ethics and intellectual property, designed to avoid violations, voluntary or involuntary, of ethical principles.

Recommendations: There are no 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 activities⁵.*

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

Within the IOSUD-UBB and the Doctoral School of Environmental Science, there are mechanisms to ensure that the training program based on advanced academic studies aims at learning outcomes. The syllabus make specific references to the knowledge, skills and competences acquired by the PhD students after completing the training program.

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

Each discipline syllabus from the curriculum of the training program based on advanced academic

⁵ 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.



studies details the competencies, skills and aptitudes that the PhD students will acquire after completing each discipline.

Recommendations: There are no 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.*

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

Throughout the studies, the PhD student is supported by a guidance committee, composed of specialists who can contribute to the smooth running of the research process, with complementary skills to those of the PhD coordinator. The guidance committee activity is reflected by the reports written during the research project/report presentation meetings and by the informal meetings, in order to discuss specific aspects of the research (field activities, laboratory, data interpretation, etc.).

The guidance committee members are registered in the list of positions of the doctoral school (Anexa A.3.1.1) and in Annex B.2.1.4. The guidance committee members were selected from the specialists from the Faculty of Environmental Science and Engineering and other faculties from Babeş-Bolyai University, and in some cases, even from outside the University.

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

Within the SDSM, the activity of the PhD students is supported by functional guidance committees, which contribute significantly to the success of the individual research of each PhD student. The list of the guidance committee members from the evaluated period includes 47 teaching staff and researchers, having the minimum academic/research degree of lecturer/CS III PhD (Table 2.3 - Self-evaluation report).

Recommendations: There are no 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.*

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

The ratio between the number of PhD students and the total number of teaching staff/researchers from the guiding committees is 0.68, according to Annex A.3.1.1 and Annex B.2.1.4

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

The ratio of 0.68 between the number of PhD students and the total number of teaching staff/researchers from the guiding committees confirms the fulfilment of the indicator B.2.1.5, which proposes a ratio below 3: 1.

Recommendations: There are no recommendations.

The indicator is 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.*

The PhD students enrolled at the Doctoral School of Environmental Science capitalized the research results through presentations within conferences in the country and abroad and through scientific publications in international journals indexed BDI or indexed/rated WoS. Also, the PhD students have been involved in numerous research projects, and their contributions can be found in the reports of these projects.

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.*

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

According to the data included in the Self-Assessment Report and in Annex B 3.1.1, there is at least one significant contribution of each doctoral graduate from SDSM. Annex B 3.1.1 lists over 100 articles of the 19 PhD students who obtained the title of doctor during the evaluation period.

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

The graduates of the Doctoral School of Environmental Science demonstrated the high-level capitalization of research results through publications in the main international flow and in BDI indexed journals. Each graduate of doctoral studies within SDSM has at least one publication relevant to the topic, and the average is 5 publications/graduate.

Recommendations: There are no 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.*

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

The number of presentations of the PhD students who completed their doctoral studies in the evaluated period, in the form of oral or poster presentations, at prestigious scientific events is 80, which compared to 19 graduates generates the ratio of 4.21, higher than the standard of 1 proposed by the indicator B.3.1.2 (Annex B.3.1.2).

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

The ratio between the number of presentations at prestigious scientific events and the number of graduates of the Doctoral School of Environmental Science is 4.21, which indicates the fulfilment of the criterion B.3.1.2.

Recommendations: There are no 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.*

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

The doctoral committees for the public defence of the PhD thesis included members from prestigious institutions in the country and abroad. According to the Annex B.3.2.1, in the compiled statistics, there are no external members of the doctoral committees who have participated in more than two theses coordinated by the same PhD coordinator in one year.

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

All the designated members demonstrated their professional and adequacy prestige for the subject of the theses they evaluated. The number of 2 participations of a reviewer to theses coordinated by the same PhD supervisor in one year, was not exceeded in any situation.

Recommendations: There are no 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.*

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

According to the Self-Assessment Report and Annex B.3.2.2, for no external scientific reviewer, the value of 0.3, representing the ratio between the number of assigned PhD theses and the number of PhD theses defended in the field of Environmental Science, was not exceeded.

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

According to Annex B.3.2.2, the maximum number of participations of an external reviewer in the doctoral committee for the public defence in the field of Environmental Science, in the evaluated period, is 3, which means a ratio of 0.15, below the threshold of 3, established by indicator B.3.2 .2.

Recommendations: There are no recommendations.

The indicator is fulfilled.

Domain C. QUALITY MANAGEMENT

**general description of domain analysis.*

Within IOSUD-UBB and at the Doctoral School of Environmental Science level, there is a permanent interest for quality assurance and there are functional evaluation mechanisms regarding the quality.

At faculty's level and also in its departments, including the doctoral school, annual quality assurance programs are carried out. These programs refer to the quality of the educational process, scientific research, internal services, as well as services to the community.



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.*

The evaluation of the quality and the progress of the doctoral schools/fields is performed periodically. IOSUD - UBB has developed and applies the procedure for evaluation and internal monitoring of the doctoral schools evolution, a procedure that contains the criteria: the scientific activity of the PhD supervisors, the infrastructure and logistics necessary to carry out the research activity; the procedures and subsequent rules, based on which the doctoral studies are organized.

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.

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

At IOSUD-UBB level, the procedure for evaluation and internal monitoring of the doctoral schools activity is applied (Annex C.1.1.1). The procedure ensures the compliance with the performance indicators regarding the institutional capacity, the educational effectiveness and the quality management at doctoral schools and doctoral field level. The collected data are included in a database that includes the structure and characteristics of the PhD students, the structure and characteristics of the PhD supervisors, the admission to doctoral studies and candidates, doctoral graduates, financial aspects, infrastructure and logistics necessary for the doctoral studies. The scientific activity of the PhD supervisors and the PhD students is summarized in the UBB Academic/Scientific Activity Management database - infocercetare.ubbcluj.ro.

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

Within the IOSUD-UBB and the Doctoral School of Environmental Science, the procedure for evaluation and internal monitoring of the doctoral schools evolution is applied. The UBB Academic/Scientific Activity Management database - infocercetare.ubbcluj.ro is functional, which summarizes the research activity, the didactic activity, and the activity for the doctoral school members community.

The didactic and research activity evaluation by the management of the faculty/department is performed in accordance with the dedicated procedure. Based on a prior appointment, within the faculties the activity of the academic staff is evaluated by their colleagues (inter-evaluations), according to the afferent procedure.

Recommendations:

Use results for improving the process
Apply PDCA cycles and learn from experience and mistakes.

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.

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

Within the IOSUD-UBB and the Doctoral School of Environmental Science, the operational procedure regarding the organization and carrying out of the student satisfaction assessment process exists and is applied. This procedure is applied to undergraduate, master and doctoral students. The questionnaire is implemented online within the UBB AcademicInfo platform <https://academicinfo.ubbcluj.ro/>. The questionnaire for assessing the UBB PhD student satisfaction is structured on three dimensions: Teaching-learning-research, Material resources, respectively Facilities and services (Annex C.1.1.2). The first dimension explores the relationship of the PhD students with the Institute for Doctoral Studies, the relationship with the doctoral school, the curriculum offered by the doctoral school and the curricula offered by the IOSUD-UBB, the involvement in the research activity and the possibility to participate in scientific events. The second dimension refers to the spaces dedicated for study activities, equipment, libraries. The third dimension refers to the administrative and social services, offered by the faculty, the centre of international cooperation, etc.

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

Within the IOSUD-UBB and the doctoral school, there are mechanisms and procedures for identifying and assessing the needs of the PhD students and their level of satisfaction regarding the doctoral study program. The questionnaire for the PhD students includes 3 dimensions, evaluating the teaching-learning-research process, the material resources, respectively the facilities and services. The synthesized conclusions and recommendations are used for the continuous improvement of academic and administrative processes.

Recommendations:

- Be more visible in terms of questionnaire importance
- Results should be visible
- Results should be comment with students

The indicator is 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.*

Within the IOSUD-UBB, the information regarding the doctoral studies is accessible on the Institute for Doctoral Studies website, <https://doctorat.ubbcluj.ro/ro/>. The Doctoral School of Environmental Science provides information on its own website, https://enviro.ubbcluj.ro/specializari_category/doctorat/.

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

The information of general interest regarding the doctoral studies within the IOSUD-UBB are posted on the website <https://doctorat.ubbcluj.ro/ro/>. The specific information regarding the activity at doctoral level within the Doctoral School of Environmental Science can be found on the website https://enviro.ubbcluj.ro/specializari_category/doctorat/. The information displayed is in accordance with the General Data Protection Regulation.

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

The following information is available in electronic format:

- a) The Doctoral School Regulation - <https://doctorat.ubbcluj.ro/ro/scolile-doctorale/>
- b) The Admission Regulation - <https://senat.ubbcluj.ro/wp-content/uploads/2021/04/Anexa-1-la-HS-nr.-47-privind-aprobarea-calendarului-%C8%99i-actaliz%C4%83rii-Metodologiei-de-admitere-la-studiile-de-doctorat-2021.pdf>; <https://doctorat.ubbcluj.ro/ro/metodologia-de-admitere-la-studiile-universitare-de-doctorat/>
- c) The contract for doctoral studies - https://enviro.ubbcluj.ro/wp-content/uploads/2021/05/st-mediului_Contract_de_studii_2021.pdf
- d) The Regulation for completing the studies, which includes the thesis public defence procedure - <https://doctorat.ubbcluj.ro/ro/pregatirea-si-desfasurarea-sustinerii-publice-a-tezei-de-doctoratin-conformitate-cu-codul-studiilor-universitare-de-doctorat/>
The thesis online defence procedure - https://doctorat.ubbcluj.ro/wp-content/uploads/2020/04/Anexa-3-la-Regulamentul-de-organizare-%C8%99i-desf%C4%83%C8%99urare-a-studiilor-de-doctorat_final.pdf
- e) The content of training programs based on advanced academic studies - https://doctorat.ubbcluj.ro/wp-content/uploads/2021/10/2021-2022-Doctorat-Planuri_de_invatamant_var1.pdf
- f) The scientific profile, the thematic areas/research topics of the PhD supervisors in the field, as well as their institutional contact data - <https://enviro.ubbcluj.ro/specializari/scoala-doctorala-stiinta-mediului/>
- g) The list of the PhD students in the field with basic information (year of enrolment, PhD supervisor) - <https://enviro.ubbcluj.ro/wp-content/uploads/2021/05/Lista-stud.-doctoranzi-in-stagiu-FSIM-2021-2022.pdf>
- h) Information about the standards for the PhD thesis elaboration - annex 2 <https://doctorat.ubbcluj.ro/wp-content/uploads/2021/10/Regulament-actualizat-Stiinta-mediului.pdf>
- i) Links to the abstracts of the PhD theses, which will be publicly defended, as well as the date, time, place where they will be defended, at least 20 days before the defence - <https://doctorat.ubbcluj.ro/ro/sustinerile-publice-ale-tezelor-de-doctorat/?an=2021&facultate=0&luna=0&domeniu=0&pagina=2>

Recommendations: There are no 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.*

The PhD students from IOSUD-UBB, and consequently also those from the field of Environmental Science, have access through the ANELIS + project to the international databases. The databases management and the applicants information regarding the way of accessing and using the information is performed by the Lucian Blaga Central University Library from Cluj-Napoca.

The PhD students have access to the Turnitin system for checking similarities.

All the PhD students have access to the faculty's teaching and research laboratories, as well as those of UBB, in general.

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.*

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

The "Lucian Blaga" Central University Library (BCU) is member of the Anelis Plus consortium. In addition, BCU has institutional subscriptions to other scientific research databases, of which - scientific resources with access to full text: JSTOR, EBSCO - Academic Search Complete, EBSCO - Business Source Complete, EBSCO - Art Full Text, SpringerLink Journals, Emerald Management Journals, ProQuest Central, Cambridge Journals, Science Direct Freedom Collection, American Institute of Physics Journals, American Chemical Society Journals, Institute of Physics Journals, SciFinder (CAS), Wiley Journals, MathSciNet, Zentralblatt MATH; bibliometric and bibliographic databases: Clarivate Analytics, Scopus.

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

The "Lucian Blaga" Central University Library (BCU) in Cluj-Napoca is member of the Anelis Plus consortium, which has several scientific database subscriptions to which the PhD students have access. In addition, BCU has institutional subscriptions to several international databases. The PhD students can access the databases by connecting online from UBB or BCU spaces, or they can connect remotely, using the credentials that certify the membership in the UBB community.

Recommendations: There are no 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.*

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

The PhD students have access, upon request, to the Turnitin system for verifying the degree of similarity between their own materials and other papers in the national and international scientific literature.

Starting with 2016, IOSUD - UBB acquired and renewed annually the software license in order to verify the similarity percentage (**iThenticate** textual similarity detection software provided by Turnitin), and starting with 2019 the Turnitin similarity analysis software is also used (Annex 1.2.16.1 and Annex 1.2.16.2).

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

The PhD students can use the Turnitin similarity detection software on request. The PhD supervisors and the guidance committee members have the opportunity to instruct them in using these programs, helping them to distinguish between similarity and plagiarism.



Recommendations: There are no 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.

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

The PhD students have access to the research and teaching laboratories within the Faculty of Environmental Science and Engineering. A large part of the PhD students are members of the research teams of some projects, being effectively involved in the experimental activity carried out within these projects.

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

According with the study contracts and with the internal regulations of IOSUD-UBB, the PhD students have access to the research laboratories within the university.

Recommendations:

This indicator is very important, so it is necessary that all students, in addition to access to laboratories, also have the opportunity to work on instruments.

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.

**general description of the standard analysis.*

The IOSUD-UBB and the Doctoral School of Environmental Science have a strategy for increasing the degree of internationalization of doctoral studies (Annex 1.2.5). Within the IOSUD-UBB, the international relations are managed through the Centre for International Cooperation (CCI - <https://cci.ubbcluj.ro>). The mobility opportunities are presented as they appear, on the website https://cci.ubbcluj.ro/international_news/international_opportunities.php.

The evaluated unit signed ERASMUS mobility agreements with 25 institutions from 13 countries, which facilitate the international exchange and the mobility of the PhD students and the academic staff at institutions abroad. Within the SDSM, renowned specialists from foreign universities were invited, with the purpose to held courses, invited conferences or to actually work with the PhD students on the field and in the laboratory.

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

The Faculty of Environmental Science and Engineering and the Doctoral School of Environmental



Science have signed ERASMUS cooperation agreements with 25 institutions from the following countries: Belgium, Bulgaria, Croatia, Estonia, Germany, Italy, Lithuania, the Netherlands, Poland, Portugal, Slovakia, Spain, Hungary. Annex C.3.1.1 contains the list of ERASMUS agreements valid at the time of writing this report. A number of 3 PhD students participated in ERASMUS mobilities (Annex C.3.1.1-1), out of a total of 44, which represents a percentage of 7%. Many students have participated in international scientific conferences.

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

Within the SDSM there is a constant interest for the intensification of international cooperation. There are numerous ERASMUS agreements with institutions abroad, which facilitate the mobility of the students and academic staff. It is necessary to stimulate students to participate in ERASMUS mobilities, for a mutual benefit for the involved institutions.

Recommendations:

Promote Erasmus programs and mobility trough students with different methods like open lectures, invitations, Erasmus days.

Secure shorter periods off Erasmus mobility.

Make a unique Erasmus platform for presentation of mobilities and etc.

The indicator is partially 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.*

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

The Doctoral School of Environmental Science supports the organization of co-supervised doctorates. The PhD supervisors in the field of Environmental Science develop contacts with specialists from abroad to initiate new forms of collaboration. These can materialize in co-supervised doctorates (Annex C.3.1.2), or bilateral agreements that include training internships that the PhD students carry out abroad. The SDSM invited several specialists from abroad to held lectures or training course modules for the PhD students and master level students.

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

Within the SDSM, during the evaluated period, one PhD thesis was co-supervised (Annex C.3.1.2). The thesis was defended by the PhD student Bizo Maria Lucia, and the co-supervision was established between Babeş-Bolyai University and Friedrich Schiller University in Jena.

During the evaluated period, several specialists from abroad held courses or invited conferences, with the participation of the PhD students. The list of the specialists who have held such activities is presented in the following table:

No.	Name	Institution	Academic year
1	Giuseppe Etiope	INGV Rome, Italy	2016-2017
2	Giancarlo Ciotoli	Univ. La Sapienza Rome, Italy	2016-2017
3	Lenny Winkel	ETH Zurich, Switzerland	2016-2017
4	Andrzej Solecki	Univ. Wroclaw, Poland	2016-2017
5	Philippe Burny	Univ. Liege, Fac. Gembloux	2017-2018
6	Hossein Azadi	Univ. Ghent, Belgium	2017-2018



Recommendations:

Make a connection with similar PhD programs from region and use online platform (ZOOM, MS Teams or something similar) for different and specific lectures in the field of studying.

Invite people from EU projects to be a guest lecturers

Use this COVID-19 time for better organizations in the terms of guest lecturing.

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.).*

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

Within the IOSUD-UBB, there is a strategy for the internationalization of studies in general, which includes the doctoral studies (Annex 1.2.5). This strategy provides methods to increase the internationalization of studies and to attract international students.

The IOSUD-UBB actively participates in international fairs, in which the UBB's study offer is presented and collaboration agreements are initiated on various levels. The international events in which the PhD students are invited to participate are presented on the website https://cci.ubbcluj.ro/international_news/files/INTERNATIONAL%20EVENTS%20AT%20UBB%202020-2021.pdf. The UBB's participation in various international forums and fairs is announced in the CCI Newsletter collection (ex: https://cci.ubbcluj.ro/about_us/files/newsletter/2020/NL%20aprilie%202021.pdf). Foreign experts from prestigious institutions abroad are invited to participate in the doctoral committees for the PhD thesis defence. During the evaluated period, 7 foreign experts from prestigious institutions from 6 countries were included in the doctoral committees (Annex C.3.1.3).

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

Within the IOSUD-UBB and SDSM, there are interests materialized by measures in order to increase the degree of internationalization of UBB.

The IOSUD-UBB and SDSM are actively involved in the AUF exchange programs for PhD students and postdoctoral researchers. During the analysed period, the Doctoral School of Environmental Science hosted two *Eugen Ionesco* scholarship holders - Ayah Massabalo (PhD student - Togo) and Badreddine Barhoumi (postdoctoral researcher Tunisia, currently consultant at IAEA <https://www.researchgate.net/profile/Badreddine-Barhoumi>). At the time of the evaluation, the Doctoral School of Environmental Science includes 3 foreign doctoral students out of a total of 17 doctoral students, which means 18%.

Recommendations: There are no recommendations.

The indicator is fulfilled.



IV. SWOT Analysis

<u>Strengths:</u>	<u>Weaknesses:</u>
<ul style="list-style-type: none"> - The doctoral field of Environmental Science is served by an elite teaching staff; - Through research projects and consulting contracts with parties, the teaching staff who serve the doctoral school provide an important part from the necessary resources for a good research activity; - The performed activity has a pronounced interdisciplinary character; - There are mobility opportunities both for teaching staff and PhD students; - There are collaboration with research and design institutes, and industrial enterprise; - Within the doctoral school a sustained scientific activity is carried out, with visible results at national and international level; - Very good didactic infrastructure (teaching spaces, computer laboratories equipped with license specialized software, teaching laboratories equipped with new generation specialized equipment); - Very well equipped libraries and infrastructure specific to the field; - Successes in attracting new financial resources for the continuous modernization and material and technical equipment of the faculty; - Supporting and developing the internationalization of studies; - Attracting candidates for admission to doctoral school from other faculties within UBB, but also from other education institution from the country and abroad; - The activity of the PhD students is supported both by the PhD supervisor and by the guidance committee members; - The improvement conditions for individual study of PhD students through: improve the computer network, permanent access to internet, facilities for the optimal acquisition of languages of international circulation, modernization of the library; - The dissemination of the scientific research results by participating in national and international scientific symposiums and conferences, publishing papers in specialized 	<ul style="list-style-type: none"> - The capacity to attract candidates needs to be diversified and strengthened; - A better marketing for the faculty and the career opportunities that the faculty can offer is necessary; - A small number of the books published in foreign publishing houses; - The periodical publications of the faculty have medium quotations in international classification; - It is necessary to increase the internationalization of doctoral studies by carrying out a larger number of co-supervised theses and promoting international mobility for the PhD students; - The expenses for increasing the degree of professional training of the PhD students is insufficient.

<p>journals, annual organization of symposiums, workshops and scientific conferences;</p> <ul style="list-style-type: none"> - In various cases, the attraction of students to the research activity and to doctoral studies, is done during the master level studies or even from the final years of the bachelor studies; - Annual investments to develop the infrastructure from research grants and sponsorships; - Subscriptions to foreign and Romanian scientific journals of technical field; - Elaboration and establishment of a system of periodic evaluation of the professional and scientific results of the teaching staff. 	
<p><u>Opportunities:</u></p> <ul style="list-style-type: none"> - The European legislation and policy favours the specialized training in the environmental field; - The existence of cooperation networking with universities from the country and abroad; - The interest of the adults for improvement in the field of environment; - Accessible research programs and research network; - European Commission funding programs and national grants; - The increasing demand in the country for graduates in the environmental field, due to the implementation of European Directives (Water framework Directive, Floods Directive, Nitrates Directive, Waste Directive, Seveso Directive etc.); - The existences of structural funds, which represents a chance to obtain research and institutional development funds; - The collaboration intensification between the University and the Faculty and similar institution in Europe; - Local and regional cooperation with government institutions, public and private economic agents. 	<p><u>Threats:</u></p> <ul style="list-style-type: none"> - The frequent changes in national regulations regarding the higher education are generating confusion among the PhD students; - Competition of western educational systems; - The low interest of the young people for education progress; - The demographic changes in the next years, with the consequence of a reduce number of potential candidates for studies.

V. Overview of judgments awarded and of the recommendations

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
1.	PI	<p>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:</p> <p>a) the internal regulations of the Doctoral School;</p> <p>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;</p> <p>c) the Methodologies for organizing and conducting doctoral studies (for the admission of doctoral students, for the completion of doctoral studies);</p> <p>d) the existence of mechanisms for recognizing the status of a Doctoral advisor and the equivalence of the doctoral degree obtained abroad;</p> <p>e) functional management structures (Council of the doctoral school), giving as well proof of the regularity of meetings;</p> <p>f) the contract for doctoral studies;</p> <p>g) internal procedures for the analysis and approval of proposals regarding the training for doctoral study programs based on advanced academic studies.</p>	The indicator is fulfilled	
2.	PI	<p>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.</p>	The indicator is fulfilled	
3.	PI	<p>A.1.2.1. The existence and effectiveness of an appropriate IT system to keep track of doctoral students and their academic background.</p>	The indicator is fulfilled	
4.	PI	<p>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.</p>	The indicator is fulfilled	
5.	IP	<p>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</p>	The indicator is fulfilled	Strengthen cooperation on projects in the region. Develop collaboration on projects with an emphasis on inclusion like re use initiatives.

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
		domain within the past 5 years. The grants address relevant themes for the respective domain and, as a rule, are engaging doctoral students.		
6.	PI *	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 indicator is fulfilled	Increase the number of students in projects Increase the visibility of student inclusion in real environmental projects. “Science for life” – students on doctoral study program ready for real life projects.
7.	PI *	A.1.3.3. 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 indicator is partially fulfilled	It is recommended to promote among the PhD students, the participation in training actions, using the resources available through doctoral grants. Increase the number of students participating in the grant scheme true real involvement, true better connection with employers and market. Better promotion of international activities and long life programs.
8.	CPI	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	The indicator is fulfilled	
9.	CPI	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.	The indicator is fulfilled	At the moment, the criterion is met, but it is necessary to assess the need for staff in case of an increase in the number of students.
10.	PI *	A.3.1.2. At least 50% of all doctoral advisors have a full-time employment contract for an	The indicator is	

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
		indefinite period with the IOSUD.	fulfilled	
11.	PI	<p>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.</p>	The indicator is fulfilled	
12.	PI *	<p>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 does not exceed 20%.</p>	The indicator is fulfilled	
13.	CPI	<p>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.</p>	The indicator is fulfilled	
14.	PI *	<p>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</p>	The indicator is fulfilled	

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
		on their scientific results within the past five years		
15.	PI *	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.	The indicator is fulfilled	
16.	PI *	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 indicator is fulfilled	
17.	PI	B.1.2.2. The expelling rate, including renouncement / dropping out of doctoral students 3, respectively 4, years after admission does not exceed 30%.	The indicator is fulfilled	
18.	PI	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 indicator is fulfilled	It is important to create the courses according to the interest and importance for the doctoral study and not according to the people who teach it. From previous experience, this is exactly the case with the weak point in the organization.
19.	PI	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.	The indicator is fulfilled	
20.	PI	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.	The indicator is fulfilled	
21.	PI	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	The indicator is fulfilled	

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
		written guidance and feedback or regular meeting.		
22.	CPI	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 indicator is fulfilled	
23.	CPI	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	The indicator is fulfilled	
24.	PI *	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 indicator is fulfilled	
25.	PI *	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 indicator is fulfilled	
26.	PI *	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.	The indicator is fulfilled	
27.	PI	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	The indicator is fulfilled	Use results for improving the process. Apply PDCA cycles and learn from experience and mistakes.

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
		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.		
28.	PI *	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 indicator is fulfilled	Be more visible in terms of questionnaire importance. Questionnaire results should be visible . Results should be comment with students.
29.	CPI	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.	The indicator is fulfilled	
30.	PI	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 indicator is fulfilled	
31.	PI	C.2.2.2. Each doctoral student shall have access, upon request, to an electronic system	The	

No.	Type of indicator (PI, PI *, CPI)	Performance indicator	Judgment	Recommendations
		for verifying the degree of similarity with other existing scientific or artistic works.	indicator is fulfilled	
32.	PI	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 indicator is fulfilled	This indicator is very important, so it is necessary that all students, in addition to access to laboratories, also have the opportunity to work on instruments.
33.	PI *	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.	The indicator is partially fulfilled	Promote Erasmus programs and mobility through students with different methods like open lectures, invitations, Erasmus days. Secure shorter periods off Erasmus mobility. Make a unique Erasmus platform for presentation of mobilities and etc.
34.	PI	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 indicator is fulfilled	Make a connection with similar PhD programs from region and use online platform (ZOOM, MS Teams or something similar) for different and specific lectures in the field of studying. Invite people from EU projects to be a guest lecturers. Use this COVID-19 time for better organizations in the terms of guest lecturing.
35.	PI	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 indicator is fulfilled	

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

In general organisation and all presented activities are on very high-quality level.

The teaching staff is very motivated and dedicated to education process. All of them have great science carrier. Students are very satisfy and they can apply knowledges in real life. All given recommendations are in the way to upgrade a quality. Since ESG standards for quality assurance for high institutions are now in the process of changing it will be good to predict and develop some processes which are necessary for better visibility of institution. All recommendations are in part V of this report.

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.*

Signature, Zagreb 15 November 2021.