

# List of PhD students recruited through best practices for open, merit-based, transparent recruitment

Deliverable D3.6, June 2024



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Deliverable D3.6 - List of PhD students recruited through best practices  
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Deliverable D3.6 - List of PhD students recruited through best practices  
for open, merit-based, transparent recruitment

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## TABLE OF CONTENTS

ABSTRACT .....	4
INTRODUCTION .....	5
CODE OF CONDUCT FOR RECRUITMENT .....	6
THE RECRUITMENT PROCESS OF WATER4ALL PHD SCHEME .....	6
LIST OF RECRUITED PHD STUDENTS .....	9
ANNEX I - Form on PhD Scheme from Wetsus .....	11
ANNEX II - Form on PhD Scheme from BRGM .....	21

## ABSTRACT

The main goal of European Partnership Water4All Pillar C is to support knowledge transfer and the uptake of research outcomes and innovative approaches in the water sector. Amongst others, this is performed through Task C.3 which is dedicated to “Fostering capacity development of all actors” and subtask C.3.1 which is focused on “Dedicated PhD Schemes Pilot Alignment and Implementation”.

This report presents the list of PhD recruited following the [Code of Conduct for the recruitment of researchers](#) and brought together for networking and clustering, in addition to the Water-Master of Business Administration (Water-MBA) programme piloted under Water4All. Two PhD students (one from Wetsus and one from BRGM) were also invited to the open workshop on best practices in PhD programmes on 11 December 2023. They gave their testimonies on their recruitment experiences during the workshop and on [Water4All newsletter](#). The content of this deliverable D3.6 focuses on the list of the general recruitment process and the list of PhD students recruited by Wetsus and BRGM. Other deliverables will focus on the training and networking aspects of the PhD programme.

All PhD students recruited through best practices for open, merit-based and transparent recruitment are currently working on a project related to Water4All's Strategic Research and Innovation Agenda (SRIA).

# LIST OF PHD STUDENTS RECRUITED THROUGH BEST PRACTICES FOR OPEN, MERIT-BASED, TRANSPARENT RECRUITMENT

## INTRODUCTION

The Water4All Partnership - Water Security for the Planet<sup>1</sup> - is a funding programme for scientific research in freshwater. It aims to tackle water challenges to face climate change, help to achieve the United Nations' Sustainable Development Goals and boost the European Union's competitiveness and growth. It is co-funded by the European Union (EU) within the frame of the Horizon Europe programme, a key funding programme for research and innovation. The Partnership duration is for seven years from 2022.

Water4All activities are grouped into five operational pillars: A, B, C, D and E. The main goal of Pillar C is to support knowledge transfer and the uptake of research outcomes and innovative approaches in the water sector. To achieve this ambitious goal, the activities aim at acceleration of the dialogue between science and policy communities, in order to ensure that research and innovation actions are responding to policy needs, but also to reinforce the connections with the economic sectors for a more effective implementation of innovative solutions at local and regional scales. In this context, specific activities will be dedicated to further develop the skills of wide range of involved actors, as well as to provide a framework for data and information sharing.

Within Pillar C, the subtask C.3.1 aims to “design, implement and proliferate PhD schemes with an emphasis on triple helix, multidisciplinary and cross-sectorial collaborations across interested partners that are in line with the Water4All priorities” has defined in the Strategic, Research and Innovation Agenda (SRIA) of the partnership.

This report forms an integral part of the monitoring of outcomes of subtask C.3.1 activities. This deliverable reports on the recruitment aspects of the subtask - *Dedicated PhD Schemes Pilot Alignment and Implementation* deals with recruitment, training and networking aspects of PhD students.

The C.3.1 subtask aims to raise the bar in PhD recruitment in the Water4All domain, specifically in regard to the European Code of Conduct principle that recruitment should be open, merit-based and transparent. By setting standards, and by developing, piloting and disseminating recruitment procedures that meet those standards; C.3.1 will also contribute to increased alignment in in PhD recruitment in the Water4All domain.

This document sets out the steps taken during the first two years of Water4All. The deliverable presents the recruitment process for recruiting students in the Water4All PhD scheme and a list of the 13 PhDs recruited by Wetsus<sup>2</sup> and the 5 PhDs recruited by BRGM<sup>3</sup> based on the developed recruitment procedures.

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<sup>1</sup> Water4All Partnership - Water Security for the Planet - <https://www.water4all-partnership.eu/>

<sup>2</sup> Wetsus, European centre of excellence for sustainable water technology - <https://www.wetsus.nl/>

<sup>3</sup> BRGM, the French geological survey - <https://www.brgm.fr/en>

## CODE OF CONDUCT FOR RECRUITMENT

The [Code of Conduct for the recruitment of researchers](#) consists of a set of general principles and requirements that should be followed by employers and/or funders when appointing or recruiting researchers. The document was issued by the European Commission (EC) Directorate-General (DG) for Research to ensure the transparency of the recruitment process and equal treatment of all applicants. In subtask C.3.1, the eight Code of Conduct principles and requirements were developed into recruitment procedures for PhDs in the Water4All domain:

1. Recruitment: Establish recruitment procedures that are open, efficient, transparent and based on merit.
2. Selection: Selection committees should be drawn from diverse backgrounds and have an appropriate gender balance.
3. Transparency: Information about the recruitment process, selection criteria and working conditions should be available to candidates.
4. Judging merit: Merit should be assessed both qualitatively and quantitatively.
5. Variations in the chronological order of curriculum vitae (CVs): Candidates should be allowed to submit evidence-based CVs in chronological order despite career breaks or variations.
6. Recognition of mobility experience: Any mobility experience should be considered as a valuable contribution to the candidate profile.
7. Recognition of qualifications: Appropriate assessment and evaluation should be in place.
8. Seniority: Qualification levels should be appropriate to the needs of the job.

## THE RECRUITMENT PROCESS OF WATER4ALL PHD SCHEME

The PhD Pilot Scheme is coordinated within Water4All Task C.3 on Fostering capacity development of all actors. The Scheme applies a strategic approach to collaboration in research and innovation and is complementary to the activities organised by Member States through Joint multilateral calls. Each PhD is embedded in a triple helix stakeholder group. Furthermore, each PhD project is designed to be multidisciplinary and cross-sectional in nature – see Annex I for more details regarding the outline for the scheme.

Wetsus and BRGM drafted and disseminated two documents in which the recruitment, training and networking aspects of the PhD schemes are described: Annex I - “Form on PhD Scheme from Wetsus” and Annex II - “Form on PhD Scheme from BRGM”. These documents were drafted in 2022 and are the early adoption.

In the framework of Water4All activity, Wetsus and BRGM adopted the Code of Conduct for recruitment of researchers by implementing the following procedures:

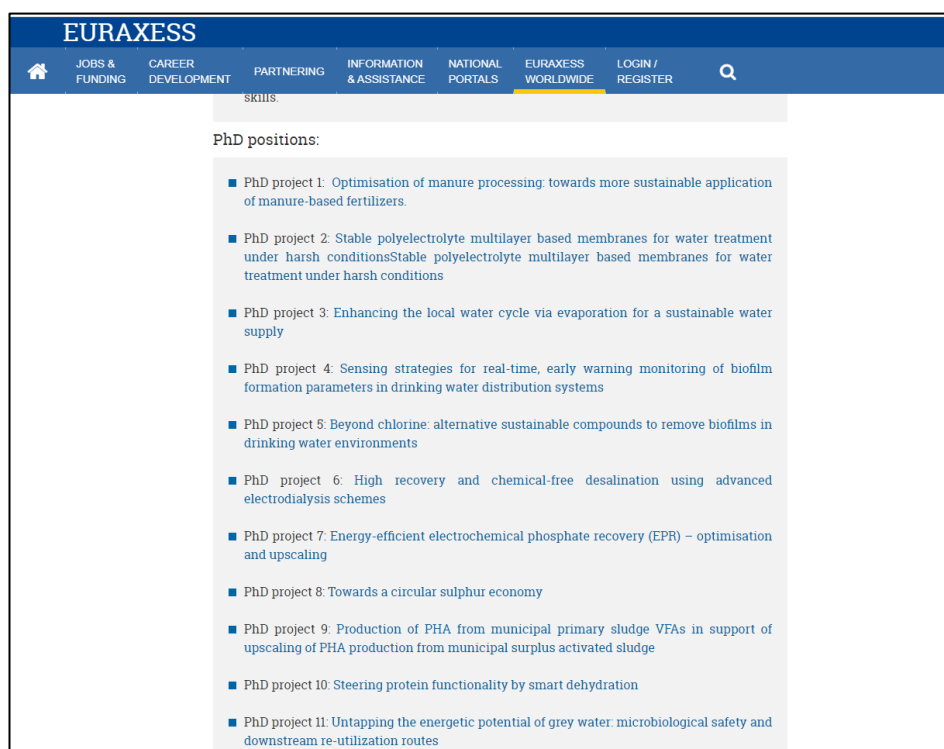
1. The selection processes and criteria were predefined, published in a call and subsequently followed to the letter.

**Wetsus:** Wetsus recruits new PhD students via a call system and a dedicated website [www.phdpositionswetsus.eu](http://www.phdpositionswetsus.eu), which contains information on the project description, recruitment procedure, criteria, working conditions, and a detailed guide for applicants that is available for download. PhD calls are published twice a year: in March and September, and are also promoted on other websites such as EURAXESS (see Figure 1) and social media. Each call includes several PhD

## Deliverable D3.6 - List of PhD students recruited through best practices for open, merit-based, transparent recruitment

projects and 1 candidate is recruited for each project. In 2022, 13 PhD students were recruited and hired. See Annex I for more detailed information on the form of the Wetsus PhD scheme.

**BRGM:** BRGM doctoral programme publishes a call for thesis proposals once a year. Once the thesis proposals have been validated by the Steering Committee, the topics are published on various websites (institutional websites: [www.brgm.fr/en/jobs-careers/doctorates-post-doctorates](http://www.brgm.fr/en/jobs-careers/doctorates-post-doctorates), and EURAXESS) for at least 1 month in March. The job descriptions include information on the PhD student's host team, the type of funding, the scientific skills required, the salary and a detailed description of the topic. For the Water4All PhD Programme, three separate calls were launched: 2 PhD projects were launched in 2022, 2 in 2023 and 1 in 2024. See Annex II for more detailed information on the form of the BRGM PhD scheme.



**Figure 1. Screenshot of the list of the PhD projects at Wetsus advertised on EURAXESS website.**

2. The calls were widely disseminated towards the target group (MSc students), including through the EURAXESS website (Figure 1), social media, international web portals such as ResearchGate and Academic Positions, and the Wetsus and BRGM networks.
3. Selection took place in 3-stages and made use of multiple validation formats (e.g., writing assignment, presentation, interview).

**Wetsus:** Stage 1 consisted of an eligibility check and assessment of the application documents against the eight principles of the Code of Conduct. Stage 2 consisted of a video interview lasting between 35 and 60 minutes. Stage 3 included a “recruitment challenge” modality, where a maximum of two top candidates were invited to Wetsus in Leeuwarden for a one- or two-day full recruitment day, including a short presentation on their current and past research, writing a short proposal, and a face-to-face interview. Wetsus uses a scoring system to assess the quality of the candidate at each stage (Figure 2). Figure 2 presents the five selection criteria, three selection stages and validation formats adapted by Wetsus in 2022. The 13 PhD students in the Water4All domain were recruited via this scheme from two calls (out of 1508 global applicants). The recruitment process in Wetsus takes 5 to 6 months.

Deliverable D3.6 - List of PhD students recruited through best practices  
for open, merit-based, transparent recruitment

**BRGM:** Stage 1 consisted of an eligibility check and assessment of the application documents for each candidate. Stage 2 consisted of a video or telephone interview lasting 15 to 30 minutes. In stage 3, a maximum of 4 best candidates were invited to an interview/audition where they were assessed on a short presentation of their MSc work and a discussion session with the panel. BRGM used a ranking system to assess the quality of the candidates after stage 2. For the 1<sup>st</sup> call, 28 applicants and 4 of them were selected for the stage 3. For the 2<sup>nd</sup> call, 2 of the 10 applicants were selected for stage 3. For the 3<sup>rd</sup> call, 3 applicants of 35 were selected for stage 3. The process of recruitment for BRGM takes five months (from March to the beginning of July) and usually PhD students start in October, as they need to have their master 's degree validated.

For both Wetsus and BRGM, once the candidate with the highest score or ranking has passed Round 3, they will receive the offer within 2 weeks. In the event of rejection of the offer, the position will be offered to the candidate who is next in line for the position. If that candidate also rejects the offer, the position is considered not filled and will be advertised again in the next round of the PhD call.

Criterion	Max. Points	Round 1 Documents	Round 2 Video interview	Round 3 Recruitment challenge
<i>Research skills and basic knowledge</i>	40	Grades, publications, recommendations and prizes	Q&A about previous education and research	Q&A on scientific concepts, methodologies and research topic, write a short research proposal
<i>Motivation and affinity for the proposed (multidisciplinary) research</i>	15	Motivation letter/video	Q&A to explore about the content of motivation letter/video	Write a short research proposal and conversation with evaluators
<i>Affinity for personal development and business-oriented training</i>	15	Motivation letter/video and past experience	Oral explanation	Conversation with evaluators about affinity with entrepreneurship
<i>Initiative and independency</i>	15	Extracurricular activities and collaborations	Research ideas, problem solving approach and extracurricular activities	Presentation skills, interaction with co-applicants, evaluators and Wetsus PhD students
<i>Communication skills</i>	15	Video making and writing skills	Oral communication	Presentation approach, conversation and writing skills
<i>Scores passing at the following round</i>	Points $\geq$ 70 (max. 15 CVs)		Points $\geq$ 80 (max. 4 candidates)	Points $\geq$ 90 (a candidate selected for the position)

**Figure 2. Selection processes and criteria implemented at Wetsus in 2022**

- In addition to the supervision panel as the main evaluator for the candidate, independent (external) evaluators are involved in at least in one of the recruitment stages.

**Wetsus:** The external experts were selected from the Wetsus network (partnership with 106 companies and 16 universities) with a background and/or research activity related to the advertised PhD project. They were involved in stage 1 and stage 3 of the recruitment process.

**BRGM:** In the early stages of the project/proposal development, at least two external academic experts in the field were involved to assess the quality of the proposal before approval. In the recruitment phase, experts (one or two) in the field of the project who were not part of the supervising team were involved in stage 3.

- Rejected candidates receive feedback in the form of written e-mail from the evaluators. For both Wetsus and BRGM, the aim was for all candidates to be informed of their performance during the recruitment process within one month for stage 1, and two weeks for stage 2 and 3.

## LIST OF RECRUITED PHD STUDENTS

The list shows PhD students and their respective PhD topics, recruited in accordance with the Code of Conduct for the Recruitment of Researchers, where Table 1 shows the list of PhDs recruited by Wetsus and Table 2 by BRGM. The PhD students have been brought together for networking and clustering, in addition to the Water-MBA programme piloted under Water4All. The main research project (4 years full-time) of all 13 PhD students (Table 1) is funded by other Regional and National Research funding and companies. The main research project (3 years full-time) of all 5 PhD students (Table 2) is funded by BRGM and external funds (private company, regional authorities, and national research projects).

All PhD students recruited through best practices for open, merit-based and transparent recruitment are currently working on a project related to Water4All Strategic Research and Innovation Agenda - SRIA<sup>4</sup>.

**Table 1. List of the 13 PhDs in the Water4All domain hired by Wetsus in 2022 based on the open, merit-based, transparent recruitment procedures.**

PhD*	Country of origin	Topic	Water4All SRIA subtheme	University	Societal stakeholder involvement		Multi-Disciplinary <sup>#</sup>	Cross-sectorial <sup>#</sup>
					Company	(Semi) Public sector		
XZ (f)	CN	Robust membranes based on polyelectrolyte multilayers	Circular economy	Twente	Pure Water Group	Water supply sector	Process technology & Chemistry	Industry & Water
RN (m)	PT	Novel anti-biofilm coatings for drinking water distribution networks	Water infrastructures resilience	Twente	Georg Fischer	Water Authority (STOWA)	Chemistry & Hydrology	Manufacturing & Water
PM (f)	LB	Sustainable disinfectants for drinking water distribution networks	Innovative water disinfection	Groningen	Pentair	Water Authorities (STOWA)	Chemistry & Microbiology	Industry & Water
SP (f)	IT	Electrochemical phosphate recovery from dairy wastewater	Circular economy	Wageningen	Westra	Water Authority de Dommel	Electrochemistry & Water treatment	Agrifood & Water
YX (m)	CN	Polymer production from municipal wastewater	Circular economy	Delft	Paques Biomaterials	Water Authorities (STOWA)	Polymer science & Water treatment	Industry & Water
SY (m)	CN	Thermal energy recovery from grey water	Circular economy	Groningen	DeSaH	Health sector (Izore)	Thermal engineering & Water treatment	Energy & Water
DCB (f)	IN	Optical fiber sensing for aquifer management	Groundwater management	Twente	WLN	Water supply sector	Geohydrology & Optics	IT & Water
RQ (m)	CN	Inline leak detection in drinking water distribution networks	Water infrastructures resilience	Groningen	Acquaint	Water supply sector	Hydrology & Electronics	IT & Water
EE (m)	GH	Nano plastic removal from water through enhanced coagulation	Innovative water disinfection	Twente	Nijhuis	Water Authorities	Process technology & Chemistry	Industry & Water

<sup>4</sup> Water4All Strategic Research and Innovation Agenda (SRIA), 2022-2025. [Water4All Digital Library](#)

Deliverable D3.6 - List of PhD students recruited through best practices  
for open, merit-based, transparent recruitment

PhD*	Country of origin	Topic	Water4All SRIA subtheme	University	Societal stakeholder involvement		Multi-Disciplinary <sup>#</sup>	Cross-sectorial <sup>#</sup>
					Company	(Semi) Public sector		
AZ (f)	BO	Enhanced phototrophic biomass production through the addition of hydrogen	Circular economy	Groningen	Bosman van Zaal	Water Authorities	Progress technology & Microbiology	Agrifood & Water
JK (m)	LB	Extended biostability of potable water through sustainable non-chemical treatment	Innovative water disinfection	BOKU (Vien)	Water & Light	Water supply sector	Physics & Microbiology	Manufacturing & Water
AKS (f)	IN	Steering protein functionality using smart dehydration	Circular economy	Twente	FeyeCon	Food sector Avebe	Food chemistry & Separation technology	Food & Water
MK (m)	TR	EPS-based solutions to increase soil structure and resilience to drought	Water supplies for activities.	Wageningen	Agriton	Water Authorities	Soil chemistry & Bioengineering	Agri & Water

<sup>#</sup> As part of the PhD scheme, each PhD is embedded in a triple helix stakeholder group. Furthermore, each PhD project is designed to be multidisciplinary and cross-sectional in nature. Gender: (f) is female and (m) is male.

\* To protect personal information, the full names of the recruited PhD students are not disclosed in this public document.

**Table 2. List of the 5 PhDs in the Water4All domain recruited by BRGM based on the open, merit-based, transparent recruitment procedures; 2 in 2022, 2 in 2023 and 1 in 2024.**

PhD*	Starting date	Topic	Water4All SRIA subtheme	Funding source	University	Societal stakeholder involvement	Multi-Disciplinary <sup>#</sup>	Cross-sectorial <sup>#</sup>
RKI (f)	01/10/2022	Innovative multifunction microsensor for water quality monitoring	Innovative water disinfection	France National Research Agency	Rennes University	KLEARIA (DeepTech company)	IT, Chemistry & Water	Industry & water
LD (f)	01/10/2022	Modelling the hydrogeological functioning of karst aquifers under constrains of geochemical and geophysical data	Water resources management	University	Montpellier University	Water supply companies	Modelling, Water & Chemistry	IT & water
AC (m)	01/03/2024	Development of indicators and geochemical tools for the understanding of confined aquifers in France	Water resources management	France National Research Agency	Paris University	Regulatory agencies, private sector	Geochemistry, Hydrology & Modelling	IT & water
LJ (m)	01/12/2023	Estimation by modelling of the rise of water tables and their impact on existing sewerage networks in urban areas, and possible management solutions	Water resources management	VEOLIA, Lens-Liévin Agglomeration Community, France National Research Agency	INRAE, Mons University (BE)	Private sector, Water supply sector	Hydrology & Modelling	Industry & water
SR (m)	01/10/2023	Hydraulic head simulations within anthropic context with help of deep learning. Analyse and acknowledge hydrogeological complexity by better expert knowledge integration	Water resources management	Normandy Research fund	Rouen Normandy University	Regulatory agencies,	Hydrology & Modelling	Industry & water

<sup>#</sup> As part of the PhD scheme, each PhD is embedded in a triple helix stakeholder group. Furthermore, each PhD project is designed to be multidisciplinary and cross-sectional in nature. Gender: (f) is female and (m) is male.

\* To protect personal information, the full names of the recruited PhD students are not disclosed in this public document.

## ANNEX I - Form on PhD Scheme from Wetsus

### Data Collection Form on PhD schemes, for Water4All subtask C3.1

(ver. October 2022)

This document aims to collect detailed information about the PhD schemes used by the individual partners participating in the Water4All subtask C3.1. Subtask C3.1 aims to develop, pilot, and disseminate a PhD scheme that can be applied across the partnership (alignment).

#### General information about the C3.1 partner (legal entity, type of organisation, main role, size)

**Wetsus**, European centre of excellence for sustainable water technology, is a non-profit research centre located in the city of Leeuwarden, province of Friesland in the Netherlands. From its foundation in 2004, Wetsus has created a unique multidisciplinary research environment, becoming a hub for intersectoral cooperation between technology companies (providing solutions), private end-users, public end-users and universities.

Wetsus scientific programme consists of circa 60 PhD projects carried out in the multidisciplinary laboratories at Wetsus in partnership with 106 companies and 16 universities that contribute with expertise and funding. The program is open for new companies and universities to join.

The quality of research is reflected by the average citation factor for scientific publications (=2.6), 93 granted patents, 38 spin-off companies, and 110 graduated doctors (most of which are now successful entrepreneurs or academics).

Wetsus is a value-based organisation, it operates based on the following values: Innovation, partnership, reliability, joy and cooperation.

### Research theme organization

The Wetsus research program is organised into 20 research themes

For each research theme, a theme manager, from industry, is appointed. In addition, a theme coordinator employed at Wetsus is appointed to take care of the daily coordination. The organization is schematically depicted in Fig 1.

Each theme consists of multiple PhD researchers, universities (providing supervision), and companies/endusers. Each involved academic supervisor represents a different discipline. Also, the companies/endusers complement each other, direct competitors cannot be member of the same theme. A research theme is an IP cluster; to which the participating companies/endusers have direct access.

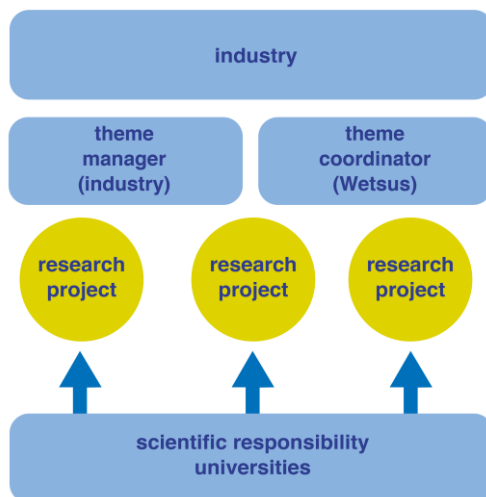


Fig. 1. Structure of a research theme.

The PhD-researchers executing the research projects are in principle employed by the involved universities and full time seconded in the multidisciplinary Wetsus laboratory in Leeuwarden. All PhD-students are supervised by their professor and other relevant university staff. To each PhD researcher active in the Wetsus laboratory, a daily supervisor (PhD mentor, or PhD coach) is assigned from the Wetsus scientific staff. Often this is the same person as the theme coordinator of the theme where the PhD researcher performs his research in.

All themes meet at least three times a year in person. In these theme meetings the progress of the research is discussed with all the participating companies/endusers and universities.

Deliverable D3.6 - List of PhD students recruited through best practices  
for open, merit-based, transparent recruitment

**Process to define the call/vacancy topic(s) for PhD students** (describe the process: which people, organisations or research agenda's play a role)

PhD research topics are defined within a research theme during an idea driven iterative process between the participating companies, public end-users and the universities. This leads to an orientation on societal & commercial relevance, combined with scientific excellence.

One of the participating universities writes a PhD project proposal based on the ideas supported by the theme. The final proposal is evaluated by an independent program council. The program council, consisting of independent experts from the field, advice the executive board about the proposal based upon three pre-defined criteria:

- Scientific quality
- Innovation potential
- Composition of research team

Subsequently the executive board decides on the implementation of the PhD project.

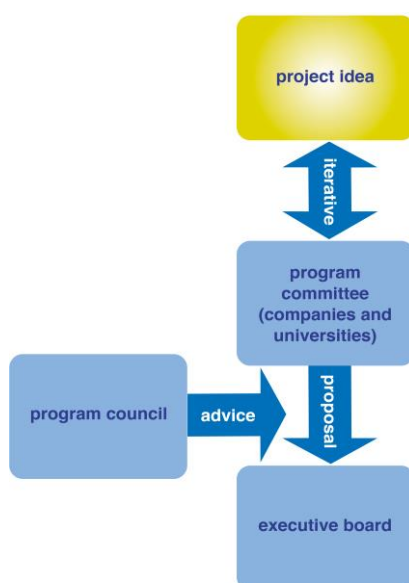


Fig. 2. Schematic representation of the assessment of PhD project proposals.

Deliverable D3.6 - List of PhD students recruited through best practices  
for open, merit-based, transparent recruitment

**Selection and recruitment procedures:**

1. Advertisement of the call/vacancy for PhD students (describe the content, format and different dissemination channels)

**PhD call launch:**

Since 2015, Wetsus recruits new PhD-students via a call system and a dedicated website [www.phdpositionswetsus.eu](http://www.phdpositionswetsus.eu). PhD calls are launched twice a year: in March and September. Each call comprises multiple PhD topics. For each topic one person will be required.

The positions are shared via Euraxess, Academic transfer and social media.

2. Application process and documents (describe the type of information the applicants have to provide, how are the application documents submitted)

**The application process:**

The application documents have to be sent exclusively via the web-based application form on the specific webpage of the research project of choice. Research projects are available online at <https://phdpositionswetsus.eu/>

*List of required documents to apply:*

To apply, candidates need to submit the following documents:

1. A motivation letter, which can be submitted either in a writing format with max. word count of 350 words or a video format of the duration of max. 2 min with max. size of 100 MB.
2. An up-to-date curriculum vitae (CV), including the following information: complete name, date of birth, current location, education, list internships and thesis (subject, name supervisor, grade, etc.), publications (if applicable), work experience (if applicable), scientific interests, complementary qualifications, achievements and other relevant information.
3. A copy of MSc diploma(s) (or a letter from university stating the expected graduation date) and grades (with explanation of the grading system).
4. One/two signed recommendation letters, with contact information of the referee(s).

Only applications that are complete, in English, and submitted via the application webpage before the deadline will be considered eligible.

Deliverable D3.6 - List of PhD students recruited through best practices  
for open, merit-based, transparent recruitment

3. Selection/evaluation process (describe the process: selection/evaluation criteria; scoring/ranking; the composition of the selection/evaluation committee; the different stages in the process; to which extend is the process open, merit-based and transparent according to the [code of conduct for the recruitment of researchers](#))

**The selection process:**

Round 1 - Eligibility check and assessment of application material. The application documents received per each candidate will be evaluated by internal evaluators (from Wetsus and academia), together with external experts and the HR department. Evaluation will be carried out according to eligibility criteria evaluating each candidate for different skills such as basic knowledge, communication approach, teamwork, problem-solving, management of research and innovation, public awareness activities, etc. Particular attention will be paid to the suitability for the interaction with industries, and for patents or inventions development. Among all the eligible applicants, maximum of 15 applicants (with a score  $\geq 70$ ) will be selected for a video interview.

Round 2 - Video interview. The interview panel will be composed of the Wetsus and academic supervisors. The interview will have a duration of 35-60 min. A maximum of 4 applicants (with a score  $\geq 80$ ) will be selected for Round 3.

Round 3 - Recruitment challenge. The best candidates are invited to Wetsus for a full recruiting day. Travel and accommodation costs will be covered by Wetsus, to avoid any social or income-related bias in the selection process. During the challenge, the candidates will be assessed for:

- Giving a short presentation, focussing on the key findings and discussions from their MSc thesis work.
- Write a short project proposal, related to the topic of the PhD position applied.
- Short face-to-face interviews with the academic and Wetsus supervisor, and one external evaluator.

**The scoring process:**

Application scoring system:

In the selection process, the suitability of the applicant is assessed using a scoring system. In each round, the evaluators will take into consideration the whole range of experience of the candidates, focusing on their potential as researchers, but also assess the candidate considering their creativity and level of independence. To ensure this, the evaluation process will consider a wide range of skills which are grouped under five main evaluation criteria. The criteria and their maximum scores are listed as below:

1. Motivation and affinity for the proposed topic (15 points)
2. Research skills and basic knowledge (40 points)
3. Affinity for personal development and business-oriented training (15 points)
4. Initiative and independency (15 points)
5. Communication skills (15 points)

These criteria evaluate each candidate for different skills such as basic knowledge, communication approach, teamwork, problem-solving, management of research and innovation, public awareness activities, etc. Particular attention will be paid to the suitability for the interaction with industries, and for patents or inventions development.

Deliverable D3.6 - List of PhD students recruited through best practices for open, merit-based, transparent recruitment

**After selection / approval** (describe the contractual arrangement with the selected applicant: employment, secondment or scholarship grant; what is the location and duration of the appointment; is a third party like a university involved)

**After recruitment the selected applicant will be offered:**

A four year appointment by one of the cooperating universities. The salary and working conditions are based on the collective labor agreement of the Association of Dutch Universities (VSNU).

**Funding** (what is the source of the funding available for the selected candidates; which costs are covered by this funding; if there is a co-funding requirement, how is this organised)

Wetsus receives its funding from the local (City of Leeuwarden), regional (Province of Fryslân) and national (Ministry of Economic Affairs and Climate Policy) governments. This funding is combined with contributions from participating companies/endusers and universities.

**Research skills** (describe the academic training the PhD student will enjoy: which training is provided by with party, e.g. research institute, involved university or dedicated research school; how is the PhD graduation organised)

In addition to their university's graduate school courses, the Wetsus PhD-students follow the doctorate program of Wetsus. In this program, they not only learn how to work as excellent independent researchers, but also how to have impact on science and society. Personal development is a major part of this doctorate program. This is crucial as Wetsus has a challenging goal that requires not only high scientific standards, but also a high personal involvement. For meaningful work, commitment, spirit and free thinking are needed, while curiosity, openness and astonishment are needed for groundbreaking accomplishments. Through the company partners a unique insight in innovation is experienced. This is also how Wetsus PhD-students are connected to a non-academic environment. Wetsus offers a specific training program which supports and nourishes the personal development of the PhD-students. During the 4-year doctoral program the PhD-students will follow the courses presented in the figure below:

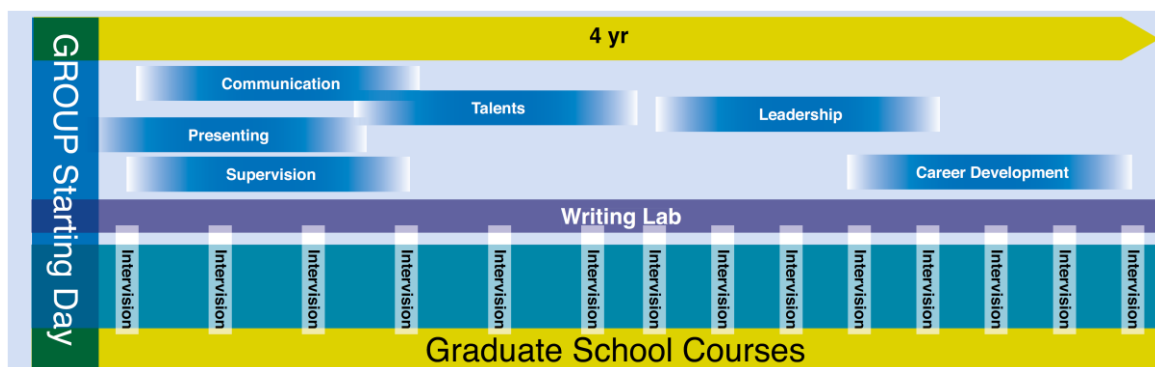


Fig. 3. Schematic of the personal development program for 4-year PhD students.

Once the minimum requirements set by affiliated University are fulfilled a PhD student will be allowed to have the final examination (PhD defence). Typically, the graduation will be processed by the Examining Board. The Examining Board makes the graduation official and determines if the examination was passed.

Deliverable D3.6 - List of PhD students recruited through best practices  
for open, merit-based, transparent recruitment

**Transferable & entrepreneurial skills** (describe the non-academic training the PhD student will enjoy to develop skills relevant for the cooperation with non-academic partners, which training is provided by which party)

PhD researchers at Wetsus are offered the following courses/events:

1. Transferable skills:
  - scientific writing
  - illustrations for scientific publications
  - language course (English and Dutch)
  - project and time management
  - social media for scientists
  
2. Personal skills:
  - career development
  - communication styles
  - personal talents
  - student supervision and cultural differences
  - presentation skills
  
3. Entrepreneurial skills:
  - network events with companies connected to Wetsus
  - intellectual property rights workshop
  - business development course

## Deliverable D3.6 - List of PhD students recruited through best practices for open, merit-based, transparent recruitment

**Research valorisation** (which facilities are available for the valorisation of the research results, what is the IP-protection policy, is there support for spin-off creation and upscaling)

### **Research valorisation**

At Wetsus much attention is given to the stimulation of international networks, business development support, the proximity of test facilities, proper business education, availability of venture capital and other facilitation of start-ups.

To optimize the research valorisation process, Wetsus strives for involvement of multinationals, public companies (typically end users), start-up companies, and SME's (typically technology launchers) in the research themes. Together with the variety of excellent scientific chairs involved, this results in a unique know-how network.

To stimulate the involvement of smaller companies, several measures are in place:

- Companies with an annual turn-over under € 3 million get a discount on the participation fee.
- In a theme, each company participant, large or small, has an equal vote. This creates equality, trust and respect.
- Demonstration sites and other test facilities in the vicinity of the Wetsus research laboratory on WaterCampus Leeuwarden have been realized. Here, technologies can be tested, scaled up and demonstrated to potential customers. This is a significant facilitation of the SME's in this crucial phase of innovation.

### **Intellectual Property policy**

The Wetsus research program is divided in themes, which essentially are Intellectual Property clusters. Companies pay an annual participation fee per theme, which gives them the right to define the program (as a group with the other theme companies) and to use a shared right of first refusal on the results of the research. The Intellectual Property regulations of Wetsus aim to effectively transfer the developed knowhow to the involved companies and to let the involved know-how institutes benefit from that in a reasonable manner. An equilibrium between the interests of companies, entrepreneurs, knowhow following starting points:

- Patents will be filed by and paid for by Wetsus, as intermediary between the companies and know-how institutes.
- Wetsus hence offers the patents to the involved company participants. For commercial use, a capped success fee (or royalty), related to the market value of the invention, is paid to Wetsus.
- If none of the entitled company participants is interested, the patent can be offered by Wetsus to third parties.
- Earned success fees will be divided 50/50 between Wetsus and the know-how institute that did the actual invention. The know-how institutes can transfer (part of) their earnings to the inventing scientist(s). Wetsus' revenues in this regard are reinvested in the research program.
- For participating public companies, such as water boards and drinking water companies, a 'group-participation' cooperation form is offered. Members of these groups cannot obtain commercialization rights on patents, but can apply the inventions in-house royalty-free.
- All developed know-how will be made public, either through scientific publications or through patenting.

At Wetsus there is a dedicated person in charge of the patenting process.

**Support to spin-off creation and upscaling:**

Wetsus supports spin-off creation and upscaling via:

- Access to talent: WaterCampus offers education programs in science and entrepreneurship to increase the availability of skilled talent (new employees) on all educational levels
- Access to market: the WaterCampus ecosystem gives companies access to the most connected water technology network in the world and, via this network and facilitation programs, to the international market for water technology;
- Access to capital: at WaterCampus companies have access to a variety of investors and funds to help them start up and scale up (inter) nationally;
- Access to (technological) knowledge: WaterCampus is the gateway to all knowledge, networks and cooperation programs that are necessary for turning an innovative idea into a successful breakthrough innovation;
- Access to facilities: WaterCampus offers access to unique physical facilities (e.g. laboratories, demosites, incubator, etc.) that are necessary for optimally developing, scaling up and market-launching new technologies, products and services.

**Cooperation/collaboration** (describe the extend the PhD students work multidisciplinary intersectorial, and in a triple helix context; what is the role of non-academic parties)

Multidisciplinary: In each research theme, multiple scientific disciplines are combined in order to realise impact. Breakthrough innovation typically relies on basic sciences, key technologies, engineering sciences and environmental sciences, as depicted below.

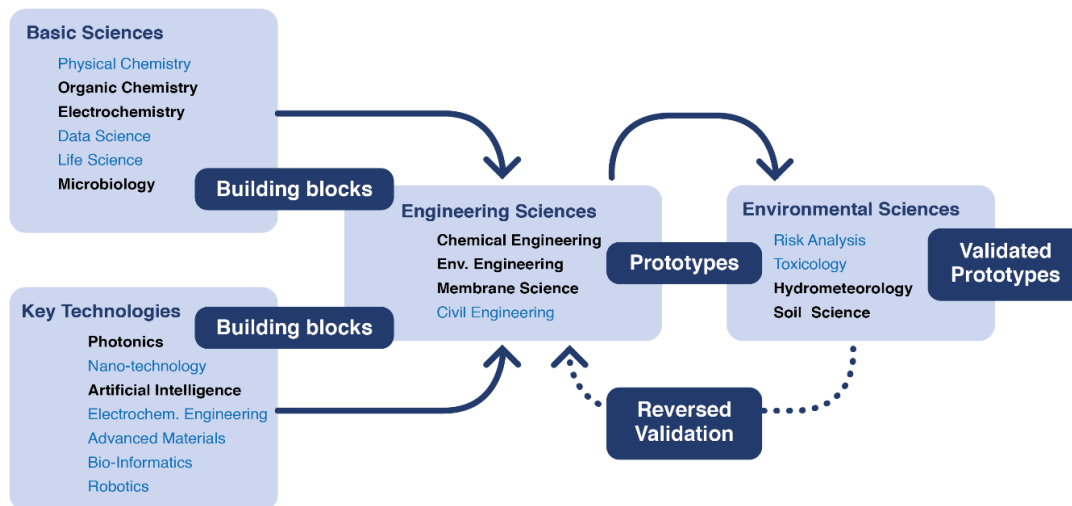


Fig. 4. Multidisciplinary in the context of water-related research.

Intersectorial: The Wetsus research programme focusses on the watertechnology needs from multiple economic sectors. Those different sectors are all represented in the research program as depicted in the left figure left below. Triple helix: The right figure shows the cooperation between the universities, companies and public-end-users within research themes.

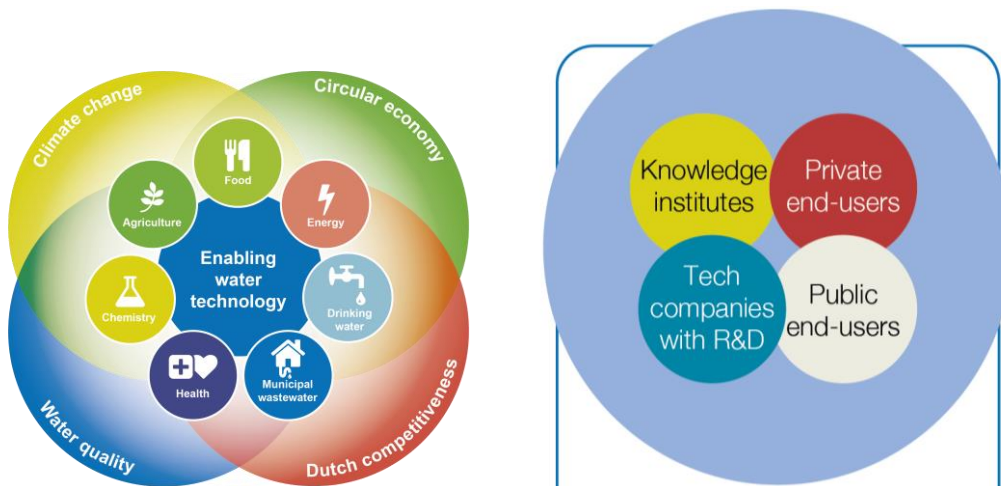


Fig. 5. Wetsus open community characteristics.

## ANNEX II - Form on PhD Scheme from BRGM

### Data Collection Form on PhD schemes, for Water4All subtask C3.1 pilot

(ver. October 2022)

This document aims to collect detailed information about the PhD schemes used by the individual partners participating in the Water4All subtask C3.1. Subtask C3.1 aims to develop, pilot, and disseminate a PhD scheme that can be applied across the partnership (alignment).

#### General information about the C3.1 partner (legal entity, type of organisation, main role, size)

BRGM, the French geological survey, is France's leading public institution for Earth Science applications for the management of surface and sub-surface resources with a view to sustainable development. Its activity is in line with 6 major scientific and societal challenges such as: Geology and knowledge of the subsurface; Groundwater management; Risks and spatial planning; Mineral resources and the circular economy; Subsurface potential for the energy transition; Digital data, services and infrastructure. Under partnerships with numerous public and private stakeholders, BRGM focuses on scientific research, expertise and innovation. Its activity meets the following objectives: (i) understanding geological phenomena and related risks, (ii) developing new techniques and methodologies, (iii) producing and distributing data for surface, subsurface and resource management, (iv) providing the tools required to manage the surface, subsurface and resources, prevent risks and pollution, and manage policies in response to climate change.

The BRGM is a public industrial and commercial institution created in 1959 and working under the Ministry for Higher Education, Research and Innovation, the Ministry for the Ecological Transition and the Ministry for the Economy and Finance.

The quality of research is reflected by the number of scientific publications (194 international scientific publications in 2020).

Research under contract are undertaken with industrial sectors and businesses of every size. A broad spectrum of applications for soil and subsoil resources and uses is covered. Like addressing challenges to supplies of subsurface resources: minerals, water, geothermal energy, developing new (eco)technologies and tools for subsurface uses and their management: materials and energy storage, development and security of utility and communication networks, proposing efficient tools for operational assessments and monitoring of the environment: risk prevention and environmental precaution, integrated data products. 47.8 M€ is dedicated to research activities.

BRGM is also in support to public policy development includes expert assessments, monitoring and studies for the State, local authorities, agencies and public institutions with 108 agreements signed with local government bodies.

The BRGM runs projects internationally to protect populations and promote sustainable resource management (projects in 30 countries).

Deliverable D3.6 - List of PhD students recruited through best practices  
for open, merit-based, transparent recruitment

**Research theme organization**

The BRGM scientific strategy is organised into 8 scientific programs. A scientific manager (PhD) coordinates each program.

Scientific research at the BRGM is focused on furthering geological knowledge and understanding surface and subsurface phenomena. Key objective: to meet the challenges of global change.

The BRGM's scientific research is conducted through:

- projects funded by government grants for public service activities,
- projects with multiple co-funding (regional and European),
- partnerships with targeted agencies (ANR, ADEME, etc.),
- responses to calls for proposals from the ministries,
- fast-track research development under contracts with industries.

Doctoral students are either employed by the university, BRGM or a private company. They come to conduct their research at BRGM either full-time or part-time (40-50% of their time). They are supervised by their PhD supervisor (from university and BRGM).

One a year, an individual monitoring committee is organised by the doctoral school to which the doctoral student belongs in the presence of the supervisors and external personalities. Generally, the first part of the meeting is dedicated to a presentation of the progress of the doctoral student's work. The second part of the meeting is held in the absence of the supervisors and in the presence of external personalities in order to freely discuss any professional and personal difficulties with the doctoral student.

**Process to define the call/vacancy topic(s) for PhD students** (describe the process: which people, organisations or research agenda's play a role)

BRGM's doctoral program launches one call for thesis projects per year (June-July). This call for thesis proposals is open to all staff members and the thesis subjects must be in line with BRGM's scientific strategy. Some scientific themes are more specifically targeted via a top-down approach.

The thesis proposals are then evaluated by external experts (at least 2 evaluations per subject).

The selection criteria are as follows:

1) Relevance of the research question; (2) Innovative nature of the proposal (Evaluating the originality of the proposal and its ability to bring out new concepts, tools and methods; Innovative character and / or innovation perspectives in relation to the existing); (3) Scientific quality of the proposal (Scientific excellence in terms of progress in knowledge of the state of the art); (4) Scientific skills of the teams (Level of scientific excellence and expertise of the teams with regard to the proposal, Complementarity of the research teams); (5) Project feasibility (Relevance of the objectives and the method chosen to achieve them; Quality of the thesis management and supervision including the involvement of supervisors); (6) Interdisciplinary multidisciplinary / unifying role (Evaluate the ability of the proposal to federate researchers from different disciplines or specialties on a common theme or object); (8) Outlook and valuation (Evaluate the possibility of future development of the proposal (expected results, interest of initiated collaborations, etc.) and its potential to attract future financing type national, European, Public-private ..). The criterion on the "relevance of the BRGM proposal / strategy" will be assessed "internally".

An internal steering committee meets to discuss the various thesis proposals and validate the thesis topics subject to obtention of cofund if necessary and to the search for candidates.

Deliverable D3.6 - List of PhD students recruited through best practices  
for open, merit-based, transparent recruitment

**Selection and recruitment procedures:**

1. Advertisement of the call/vacancy for PhD students (describe the content, format and different dissemination channels)

**PhD position publication:**

Once the thesis proposals have been validated by the steering committee, the subjects are published on different websites (institutional websites, Euraxess) for a minimum of one month. The job descriptions include information on the doctoral student's host team, the type of funding, the scientific skills required, the salary and a detailed description of the subject.

2. Application process and documents (describe the type of information the applicants have to provide, how are the application documents submitted)

**The application process:**

*List of required documents to apply:*

To apply, candidates need to submit the following documents:

1. A motivation letter.
2. An up-to-date curriculum vitae (CV), including the following information: complete name, date of birth, current location, education, list internships and thesis (subject, name supervisor, grade, etc.), publications (if applicable), work experience (if applicable), scientific interests, complementary qualifications, achievements and other relevant information.
3. A copy of MSc diploma(s) (or a letter from university stating the expected graduation date) and grades (with explanation of the grading system).
4. Optional: one or 2 signed recommendation letters, with contact information of the referee(s).

Deliverable D3.6 - List of PhD students recruited through best practices  
for open, merit-based, transparent recruitment

3. Selection/evaluation process (describe the process: selection/evaluation criteria; scoring/ranking; the composition of the selection/evaluation committee; the different stages in the process; to which extend is the process open, merit-based and transparent according to the [code of conduct for the recruitment of researchers](#))

**The selection process:**

Step 1 - Eligibility check and assessment of application material. The application documents received per each candidate will be evaluated by internal evaluators (from BRGM and academia). Evaluation will be carried out according to eligibility criteria evaluating each candidate for different skills (scientific competences for the PhD position they apply for, communications, coherence of the career plan...). A first selection is performed at this stage.

Step 2 - Video or phone interview with supervisors. The interview will have a duration of 15 - 30 min. A maximum of 4 applicants) will be selected for the next step.

Step 3 - Recruitment interview. The interview panel will be composed of the BRGM and academic supervisors and additional experts not implied in the supervision of the PhD. The duration of the interview is between 30-60 minutes. Usually, all the candidates are auditioned on the same day. During the audition, the candidates will be assessed for:

- Giving a short presentation, focussing on their academic background, the key findings and discussions from their MSc thesis work, a first attempt of their understanding of the topic of the PhD position applied (duration 10-15 minutes).
- Q&A session between the panel and the candidate.

At the end of the interviews with the candidates, the jury meets to rank or not the candidates. The ranking of the candidates is then submitted to the doctoral school.

In some cases, the doctoral school conducts an additional interview with the candidates and validates or not the choice of the initial jury.

All the candidates interviewed are informed of their ranking with justification within 5 days following the interview.

**After selection / approval** (describe the contractual arrangement with the selected applicant: employment, secondment or scholarship grant; what is the location and duration of the appointment; is a third party like a university involved)

**After recruitment the selected applicant will be offered:**

A 3-year contract is offered to the student by either the university, BRGM or the company. In all cases, a research collaboration agreement is drawn up between the parties defining the subject of the thesis, the duration, the deliverables and the intellectual property.

**Funding** (what is the source of the funding available for the selected candidates; which costs are covered by this funding; if there is a co-funding requirement, how is this organised)

The salaries of doctoral students are funded from various sources: in addition to the half-subsidy granted by BRGM from its own funding (State subsidy), the additional half-subsidy comes either from dedicated regional funding, or from the National Research Agency, or as part of an EU research project. Each year, between 15 and 20 doctoral grants are co-funded by BRGM.

Deliverable D3.6 - List of PhD students recruited through best practices  
for open, merit-based, transparent recruitment

**Research skills** (describe the academic training the PhD student will enjoy: which training is provided by with party, e.g. research institute, involved university or dedicated research school; how is the PhD graduation organised)

In addition to their university's graduate school courses, the PhD-students can follow additional training courses to improve both their scientific and personal skills.

**Transferable & entrepreneurial skills** (describe the non-academic training the PhD student will enjoy to develop skills relevant for the cooperation with non-academic partners, which training is provided by which party)

N/A

**Research valorisation** (which facilities are available for the valorisation of the research results, what is the IP-protection policy, is there support for spin-off creation and upscaling)

**Research valorisation**

The BRGM has held ISO 9001 certification (for Quality) since 2004, and ISO 14001 (Environment) since 2012. Our laboratories are accredited by COFRAC.

BRGM has a department dedicated to the valorisation of research results through patent applications and has developed a process for maturing research projects that may or may not lead to the creation of companies and the acquisition of shares in a company.

**Support to spin-off creation and upscaling:**

N/A

**Cooperation/collaboration** (describe the extend the PhD students work multidisciplinary intersectorial, and in a triple helix context; what is the role of non-academic parties)

N/A



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