move

enhancing university graduates' eMplOyability through skills deVElopment and industry collaboration in Kurdistan region of Iraq and Yemen

D2.2

Assessment of Academia-Job Market Relations

Report of Academic Offer, Job-Market Needs, Gaps and Good Practices



Co-funded by the European Union

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About MOVE

The MOVE project tackles unemployability of graduates in the Kurdistan Region of Iraq and Yemen by strengthening local universities' capacities, by fostering entrepreneurship while bridging the gap between academic training and the demands of the job market. The specific objectives of the MOVE project are:

- Assess the relationship between academia and the job market: Conduct a thorough analysis of the connection between academic programs in agricultural engineering and environmental studies and local labour market needs, while benchmarking best practices for graduate employability.
- Curriculum review: Strengthen the capacity of partner universities to update at least one curriculum (in agriculture and/or environmental studies) to better align with the demands of the local job market, reducing the gap between graduates' competencies and market needs.
- Enhance staff and student skills: Provide capacity-building opportunities for university staff and students, focusing on transversal skills (soft skills, digital skills, green skills) to empower higher education institutions to actively contribute to both local and global sustainable development goals.
- Foster entrepreneurial mind-sets: Promote innovation and entrepreneurship among students by empowering Career Development Centres and organizing joint student hackathon focused on addressing societal needs and local market demands
- Policy development and strategies for ESD and green transition in Yemen and Kurdistan region of Iraq (KRG): by establishing Living Labs in each partner institution that align with the Sustainable Development Goals (SDGs) related to environmental and sustainable development, the project will define policies and strategies to foster green transition in the two partner countries through Education for Sustainable Development (ESD)

Full partners

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- University of Calabria, Italy
- University of Murcia, Spain
- University of Duhok, Kurdistan region of Iraq
- University of Sulaimani, Kurdistan region of Iraq
- University of Garmian, Kurdistan region of Iraq
- Salahaddin University-Erbil, Kurdistan region of Iraq
- University of Aden, Yemen
- Hadhramout University, Yemen
- Kurdistan Agricultural Engineering Syndicate, Kurdistan region of Iraq
- Selah Foundation for Development, Yemen

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Executive Summary

This deliverable D2.2 presents the results of the analysis of gaps and needs between academia and job market in Kurdistan region of Iraq and Yemen in the set fields, as well as a benchmarking of good practices on graduates and students' employability particularly related to the field agricultural engineering and/or environmental studies, focusing on both the partner countries levels and the regional / international level. Finally, it also includes a Stakeholders Mapping in the local job market in Kurdistan and Yemen

Sections 5 and 6 synthesize the combined evidence and translate it into consortium-level priorities for curriculum review and employability action. Because a complete, partner-verified inventory of the academic programmes offered by each university is not yet available, institution-specific programme descriptions remain provisional and should be included only after confirmation by the respective partner universities.

The integrated T2.2 evidence draws on 170 valid responses representing academic staff, students, employers, graduates, government institutions, Non-Governmental Organizations NGOs, development organisations, research bodies and sector specialists. The findings indicate that demand for graduates in Agricultural and Environmental Studies is already visible and is expected to grow: 81.6% expect demand to increase over the next five years. At the same time, 72.1% report only partial alignment or no alignment between existing programmes and labour-market needs, while practical preparation remains the most prominent weakness among recent graduates.

The strongest curriculum priorities are sustainable agriculture, agricultural technology and climate-smart production, supported by environmental monitoring, field research, soil and water management, GIS and remote sensing, data analysis and digital transformation. The expanded evidence also highlights artificial-intelligence applications, entrepreneurship, agribusiness, project management, leadership, communication, problem-solving and professional English. These findings point to a curriculum model that combines technical knowledge with field application, digital competence, managerial capability and structured workplace exposure. Cooperation should therefore be translated into practical pathways through internships, guest lectures, student training programmes, advisory committees, jointly supervised projects, applied research, curriculum development and recurring stakeholder feedback.

Key signal	Survey evidence	Implication for MOVE
Survey base	170 valid responses	Provides a broad evidence base combining university and labour-market perspectives for priority-setting and partner discussion.
Future labour-market demand	81.6% expect demand to increase over the next five years	Curricula should prepare students for emerging digital, climate-related and implementation-oriented employment needs.
Programme alignment	72.1% report partial or no alignment	Universities should modernise selected modules and validate changes through employers and external stakeholders.
Dominant graduate weakness	83 responses identify insufficient practical skills as the leading weakness	Fieldwork, laboratories, applied assignments, internships and problem-based assessment should become central.
Partner interest	Strong interest in training, internships, advisory roles and curriculum cooperation	The consortium can convert stakeholder interest into structured, repeatable cooperation mechanisms.

Chapter 1

Introduction

1. Introduction

1.1 Project Overview and Rationale

The majority of university graduates in Kurdistan region of Iraq and Yemen expect to find employment in the public sector, particularly within government roles. This expectation has persisted for decades, as governmental jobs are widely viewed as more secure and stable. Historically, universities in both countries have focused on preparing students for public sector roles, which often require limited soft skills and are not aligned with the evolving demands of the job market. Over the past two decades, the number of higher education institutions (HEIs) in the Kurdistan Region of Iraq and Yemen has surged, leading to a dramatic increase in the number of graduates across various study programs. However, this massification of universities has made it more difficult for graduates to secure government jobs, as these departments have reached full capacity and are oversaturated with employees in most fields. As a result, many graduates are left unemployed due to a lack of relevant skills required by the private sector, both strong technical (hard) and interpersonal (soft) skills. To address this, universities need to update curricula to better prepare students for the evolving job market and emphasize soft skills. This includes updating and innovating study programs to meet the needs of the job market and fostering soft skills that are essential for success in the private sector. A shift in mind-set is required to encourage graduates to consider the private sector as a viable career option.

The MOVE project aims to support this shift by strengthening university capacity and promoting sustainable development in both the Kurdish and Yemeni societies by strengthening the institutional capacity of universities. The project aims to cultivate a new generation of young leaders, entrepreneurs, scientists, professionals, and responsible global citizens. Universities must innovate to provide education that enables their graduates to be competitive and to contribute to their countries' economic and social growth. This is particularly important in a globalized world, where knowledge exchange, cooperation, and access to global opportunities are essential for improving the quality of higher education. The interconnectedness of systems and the cross-border flow of knowledge create both challenges and opportunities for universities to enhance their educational impact. In both Iraq and Yemen. As the private sector is growing rapidly, driven by local and international demand for skilled workers. These sectors expect universities and technical institutes to equip graduates with high-quality education and soft and hard skills aligned with market needs. It is crucial to strengthen the connection between the private sector and higher education through a multi-level approach that involves several stakeholders, including higher education, civil society, governments, businesses, accelerators, and development institutions. One framework for fostering this collaboration is the "triple helix" model, which emphasizes the interactions between academia, industry, and government to promote economic and social development.

Moreover, the transition to a green economy has become a shared goal globally, with implications for employment and skills development. In this context, universities in the Kurdistan Region/Iraq and Yemen have a pivotal role to play, not only in supplying employable graduates, but also in fostering innovations and start-ups that contribute to a

more sustainable economy. Entrepreneurship and sustainable education are key drivers of job creation in these countries. To meet these needs, higher education must tailor programs to equip youth with new and relevant competences, and strong links must be established between education and society to ensure that education evolves alongside societal developments.

This dynamic relationship will enable education to respond effectively to local and global needs, fostering a sustainable development model. Universities must also embrace their role in creating innovation networks, connecting businesses, governments, and communities. As impartial and long-term actors, universities are ideally suited to facilitate these connections and support regional development. Therefore, universities must be highly responsive, adaptable, strategically directed, and well-integrated with both local and international networks.

The MOVE project will target four universities in the Kurdistan Region of Iraq and two in Yemen, modernizing and enhancing a key study program at each partner institution, with a focus on agricultural engineering and environmental fields, to better meet local market demands. This pilot initiative is designed to equip graduates with essential skills, including an entrepreneurial mind-set, to foster employment in the green economy.

Ultimately, MOVE will contribute to sustainable development by aligning university curricula with both job market needs and the global shift toward a green economy. By cultivating an entrepreneurial mindset and honing both hard and soft skills, MOVE will empower graduates to thrive in an increasingly competitive, sustainable world. The specific objectives of the MOVE project are:

I. Assess the relationship between academia and the job market: Conduct a thorough analysis of the connection between academic programs in agricultural engineering and environmental studies and local labour market needs, while benchmarking best practices for graduate employability.
II. Curriculum review: Strengthen the capacity of partner universities to update at least one curriculum (in agriculture and/or environmental studies) to better align with the demands of the local job market, reducing the gap between graduates' competencies and market needs.
III. Enhance staff and student skills: Provide capacity-building opportunities for university staff and students, focusing on transversal skills (soft skills, digital skills, green skills) to empower higher education institutions to actively contribute to both local and global sustainable development goals.
IV. Foster entrepreneurial mind-sets: Promote innovation and entrepreneurship among students by empowering Career Development Centres and organizing joint student hackathon focused on addressing societal needs and local market demands
V. Policy development and strategies for ESD and green transition in Yemen and KRG: by establishing Living Labs in each partner institution that align with the Sustainable Development Goals (SDGs) related to environmental and sustainable development, the project will define policies and strategies to foster green transition in the two partner countries through education sustainable development.

1.2 WP2 Background and Objectives

In this framework, WP2 "Assessment of academia-job market relations" aims to:

- To conduct a throughout assessment of academia-job market relations in the field of agricultural engineering and/or environmental studies
- To conduct a benchmarking of good practices on graduates' employability
- To start a collaborative process between academia and local stakeholders

Therefore, this Deliverable D2.2 presents the results of a comprehensive analysis of the gaps and needs existing between higher education institutions and the labour market in the Kurdistan Region of Iraq and Yemen, with a specific focus on the project's target fields of agricultural engineering and environmental studies. The analysis explores the extent to which current academic programmes respond to labour market demands, identifies existing skills mismatches, and highlights the key competencies and qualifications required by employers in both countries.

In addition, the deliverable includes a benchmarking analysis of good practices aimed at enhancing graduates' and students' employability, drawing on successful experiences and innovative approaches implemented at the national, regional, and international levels. Particular attention is given to initiatives that strengthen university-industry collaboration, promote work-based learning opportunities, foster transversal and technical skills development, and support the transition from higher education to employment in the fields of agricultural engineering and environmental studies.

FFinally, the deliverable provides a comprehensive stakeholder mapping of the local labour markets in the Kurdistan Region of Iraq and Yemen. This mapping identifies the main actors operating within the employment ecosystem, including public institutions, private sector organisations, employers, professional associations, NGOs, research centres, and other relevant stakeholders. In addition to evaluate their potential role in supporting graduate employability, curriculum development, and sustainable collaboration between academia and the labour market.

1.3 WP2 Methodology and Research Design

The methodology adopted for this deliverable is based on a mixed-methods approach, integrating quantitative and qualitative evidence collected through the different research activities carried out under Work Package 2, led by the University of Sulaimani and the University of Murcia. The aim was to provide a comprehensive assessment of the relationship between higher education and the labour market in the Kurdistan Region of Iraq and Yemen, while also identifying good practices and opportunities for strengthening graduates' employability in the fields of Agricultural Engineering, Environmental Sciences, Environmental Engineering and related disciplines.

The analysis combines evidence generated through the stakeholder mapping activities conducted by the MOVE partners under T2.1, the data analysis from the T2.2 labour-market needs assessment, the benchmarking studies coordinated by the University of Murcia under T2.3.

By integrating these multiple data sources and perspectives, the methodology enables a more holistic understanding of existing challenges, institutional capacities and future opportunities for cooperation between higher education institutions and labour-market actors.

The core dataset is represented by the T2.2 online survey, which collected 170 valid responses from different stakeholder groups. The survey explored perceptions of current and future labour-market needs, the adequacy of existing university programmes, skills gaps affecting graduates, and potential areas for stronger university-employer collaboration. Although the survey represents a valuable evidence base for the project, its findings should be interpreted with appropriate caution. Academic staff and students constitute a significant proportion of respondents, while employer participation varies across partner countries. Consequently, the results should be understood as indicative of prevailing trends and perceptions rather than as statistically representative of the entire labour market. The composition of each complementary dataset is therefore presented separately throughout the report to ensure transparency regarding the representation of different stakeholder groups.

To ensure consistency in the analysis, all survey responses were harmonised through a common coding framework developed jointly by the project partners. The coding process standardised variables across all participating countries and institutions, allowing responses collected through slightly different wording or terminology to be compared and aggregated.

The framework included categories covering respondent profile, employment sector, current and anticipated labour-market demand, priority professional profiles, technical competencies, transversal skills, digital skills, perceived weaknesses among graduates, alignment between curricula and labour-market requirements, existing collaboration mechanisms between universities and employers, and recommendations for improving employability. Conceptually equivalent responses expressed using different terminology were grouped under common analytical categories before quantitative aggregation and qualitative interpretation.

In addition to the labour-market survey, the University of Murcia coordinated three complementary benchmarking studies under Task 2.3, together with an initial mapping of the academic offer across the six partner higher education institutions. These activities were designed to broaden the evidence base by incorporating institutional, student and graduate perspectives on employability, curriculum relevance, career support services and university-labour market relations. Rather than focusing exclusively on labour-market demand, the benchmarking studies explored how universities currently address employability challenges and how their practices compare with those implemented by other institutions at national and international level.

The first benchmarking exercise examined the organisation and functioning of Career Development Centres (CDCs) and employability support services across the MOVE consortium. Representatives from the ten partner institutions completed a structured survey

covering organisational models, available services, employer engagement mechanisms, internship management, career guidance activities, graduate tracking systems and institutional strategies aimed at supporting students' transition into employment. This analysis enabled the identification of existing strengths, common challenges and examples of good practice that could potentially be adapted within the partner universities in Iraq and Yemen.

The second benchmarking study targeted current students enrolled in Agricultural Engineering, Environmental Sciences, Environmental Engineering, Food Science and Technology, and related programmes in the six partner country universities. A total of 273 students participated in the online survey, providing information on their educational experience, perceptions of curriculum relevance, awareness of labour-market opportunities, participation in internships or practical training, development of technical and transversal competencies, and expectations regarding future employment. Their responses contributed to assessing the extent to which existing programmes meet students' expectations and prepare them for professional careers.

The third benchmarking survey focused on graduates from the same academic disciplines. Sixty-three graduates shared their experiences regarding the transition from university to employment, the challenges encountered during job searching, the relevance of the competencies acquired during their studies, and the effectiveness of university support services. Their feedback provides valuable insights into the actual employability outcomes of graduates and highlights areas where academic programmes and institutional support mechanisms could be further strengthened.

An additional component of the methodology consisted of an initial mapping of the academic offer available within the six partner universities located in the Kurdistan Region of Iraq and Yemen. This exercise aimed to establish an overview of the existing educational provision in the target disciplines by reviewing publicly available programme documentation and institutional information. The mapping considered aspects such as programme titles, degree levels, curricular structure, learning outcomes, laboratory and practical components, internship opportunities, digital competencies and the integration of transversal skills within curricula. However, because complete institutional documentation was not yet available for every university, the mapping should be regarded as preliminary. Several elements require further verification and validation by the partner institutions before a complete comparative analysis can be undertaken. For this reason, the report avoids making institution-specific assessments where the available information remains incomplete.

Alongside these analytical activities, partner universities conducted stakeholder mapping exercises aimed at identifying the main organisations operating within their respective employment ecosystems. The mapping included public authorities, ministries, local administrations, private companies, employers, chambers of commerce, professional associations, research institutes, civil society organisations, and non-governmental organisations. Beyond simply identifying stakeholders, the exercise explored their potential contribution to curriculum development, internship provision, graduate recruitment, applied research and future university-business cooperation.

The integration of these multiple evidence sources represents one of the main strengths of the methodological approach adopted for this deliverable. By combining perspectives from academic staff, students, graduates, university managers, Career Development Centre representatives, employers and external stakeholders. The study provides a multidimensional understanding of employability challenges and opportunities within the partner countries. The diversity of respondents also allows similarities and differences between stakeholder perceptions to be examined, thereby strengthening the robustness of the overall findings.

Quantitative data collected through the surveys were analysed using descriptive statistical techniques, including frequencies, percentages, means and comparative distributions across respondent categories. Open-ended responses were examined through thematic content analysis, allowing recurring themes, priorities and recommendations to emerge from participants' narratives. Qualitative findings were subsequently integrated with the quantitative results to provide richer contextual interpretation and to explain observed patterns.

Finally, the findings from all research activities were triangulated using a comparative benchmarking approach. This process involved systematically comparing evidence across the different datasets and stakeholder groups in order to identify converging trends, complementary perspectives and significant differences. The triangulation of results also enabled the identification of transferable good practices, common institutional challenges and priority recommendations for curriculum modernisation, university-business cooperation, Career Development Centre strengthening, capacity-building activities and future employability initiatives to be implemented throughout the MOVE project.

By integrating evidence from multiple methodological components, the deliverable provides a solid empirical foundation for the subsequent project activities and supports the design of interventions that are responsive to both institutional needs and labour-market demands.

Chapter 2

Data Analysis of the T2.2 Online Survey

2. Data Analysis of the T2.2 Online Survey

2.1 General and Institutional Information about the Six HEIs in Kurdistan region of Iraq and Yemen

This section presents general and institutional information on the organisations participating in the MOVE project. The institutional analysis covered six partner Higher Education Institutions (HEIs) from the Kurdistan Region of Iraq (4) and Yemen (2), two socio-economic organisations, namely the Kurdistan Agricultural Engineering Syndicate and the Selah Foundation for Development from Yemen, and two European universities that contributed to the internal benchmarking process. The socio-economic organisations were included to provide the perspective of the professional sector and to ensure that the analysis reflected current labour-market needs and employer expectations. The European partners served as reference institutions, supporting the comparative assessment of curricula, employability strategies, and CDCs' practices.

Territory	Institutions included in the survey	Academic Offer	Degree Level
Kurdistan	Salahaddin University-Erbil		
Kurdistan	University of Duhok	Waste Management	Bachelor
Kurdistan	University of Sulaimani	Pesticides and Control Equipment	Bachelor
Kurdistan	Garmian University		
Yemen	University of Science & Technology-Aden		
Yemen	Hadhramout University		
Yemen		Nutrition and Agricultural Technology (Proposed new program)	Bachelor
Yemen		Bachelor of Environmental Science Program (existing program proposed for update)	Bachelor
Yemen		Sustainable Aquaculture Technology (proposed new program)	Bachelor

Table. 1: Participating institutions

Table 1 identifies the six partner universities included in the analysis. At this stage, the columns on academic offer and degree level are intentionally left incompleted because the full information has not yet been verified by the respective institutions. The comparative discussion in this report therefore refers to the consortium's broad agricultural, environmental and related disciplinary focus without attributing specific programmes or programme characteristics to individual universities.

2.2 Needs, Gaps and Priorities in Agricultural and Environmental Curricula

2.2.1 Objectives of the T2.2 Survey Analysis

The T2.2 survey analysis addresses four interrelated objectives. First, it assesses current and expected labour-market demand for graduates in agricultural and environmental fields. Second, it identifies technical, digital, managerial and transversal competencies required by employers and other stakeholders. Third, it examines weaknesses in graduate preparation and the degree of alignment between existing academic programmes and workplace requirements. Fourth, it gathers practical proposals for curriculum review, training, internships and longer-term university-stakeholder cooperation. The findings are intended to provide an evidence base for WP3 curriculum updating, WP4 and WP5 capacity building, and WP6 internship and employability pathways.

2.2.2 Respondents and Stakeholder Representation

The integrated evidence base includes 170 respondents from academic staff, students, employers, graduates, government bodies, NGOs, development organisations, research institutions and sector specialists. Academic staff remain the largest group at 60.9%, followed by students at 22.9%, while the remaining respondents provide employer, practitioner, public-sector, NGO, development and research perspectives. Agriculture is the dominant sectoral background at 64.8%, complemented by environmental, research and development experience. In addition, 60.9% of respondents report more than ten years of professional experience. This composition provides substantial knowledge of the current academic offer while also incorporating direct evidence about recruitment expectations, field implementation and emerging sector needs.

The diversity of respondents allows the survey to connect internal university perspectives with external labour-market expectations. The results should nevertheless be interpreted as a strategic needs assessment rather than a statistically representative census of every agricultural and environmental employer. The strongest findings are those that recur across respondent categories: growing future demand, insufficient practical preparation, incomplete programme alignment, demand for digital and climate-related competencies, and strong interest in structured university-stakeholder cooperation.

2.2.3 Current and Future Labour-Market Demand

Demand for graduates is already visible across the agricultural, environmental and development sectors. Of the 170 respondents, 74 describe current demand as moderate, 41 as high and 26 as very high; 29 describe it as low or very low (Figure 1). The future outlook is more positive (Figure 2). As 146 respondents (80.6%) expect demand to increase during the next five years, while 33 (19.5%) expect it to remain stable or decrease. Growth expectations are strongest around sustainable agriculture, agricultural technology, climate-related work, water-resource management, environmental monitoring and data-supported decision-making. This demand extends beyond conventional agricultural employment to development projects, public-sector programmes, research, environmental services, agribusiness and technology-enabled production.

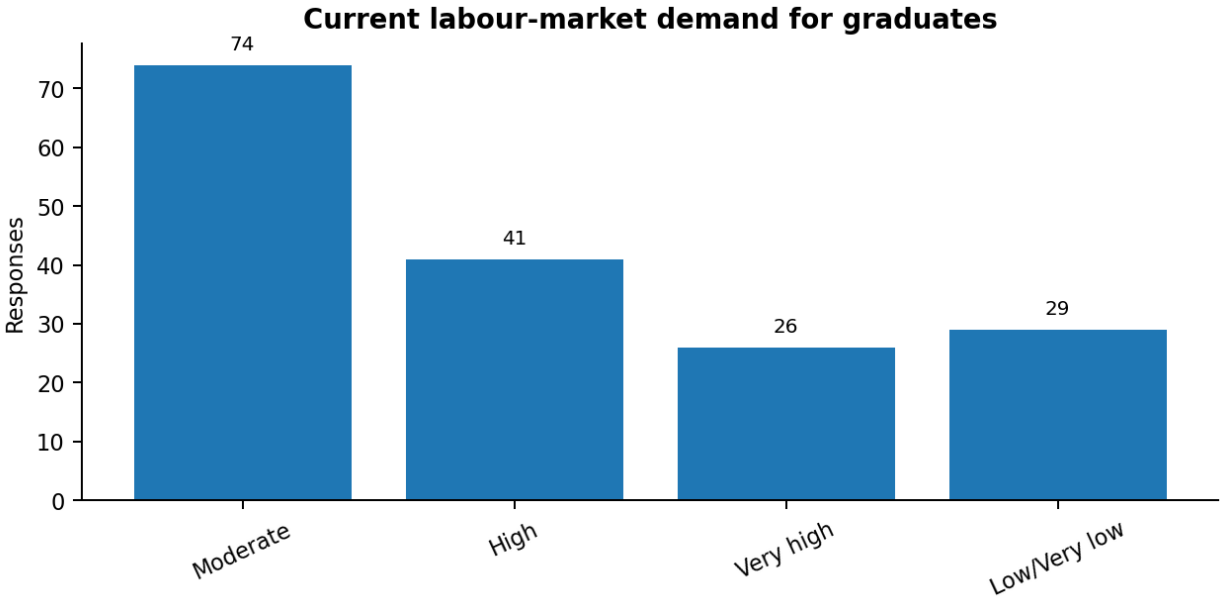


Fig. 1: Current labour-market demand for graduates in Agricultural and Environmental Studies.

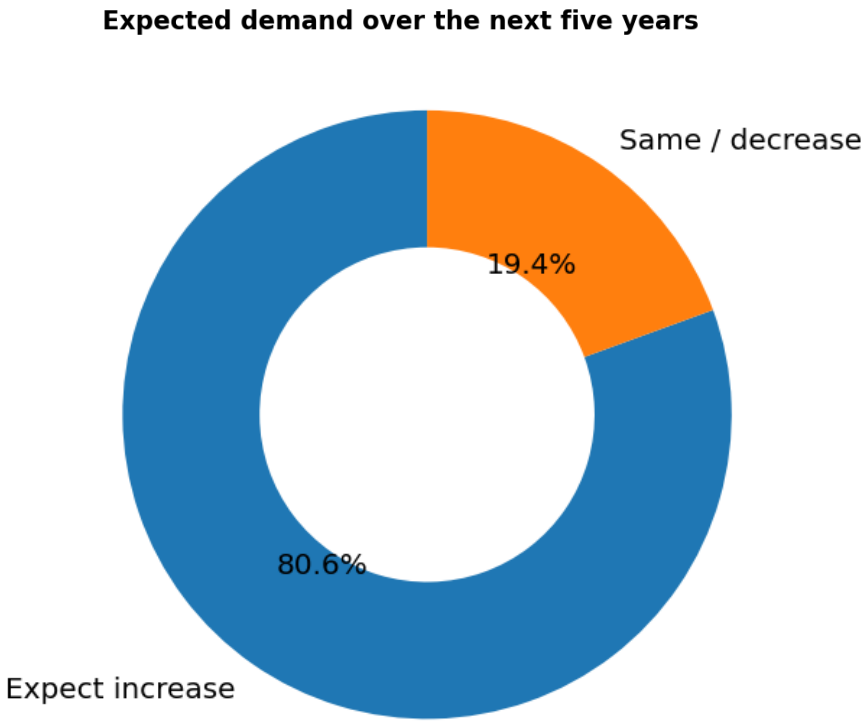


Fig. 2: Expected change in demand over the next five years.

This outlook supports forward-looking curriculum reform. Agricultural technology, sustainable production, climate adaptation, food security, water scarcity, land and soil degradation, environmental pressure and data-informed decision-making are likely to shape emerging employment needs in both the Kurdistan Region of Iraq and Yemen. Graduates will increasingly be expected to work across disciplinary boundaries, use digital tools, manage projects, interpret field data and communicate findings to technical and non-technical audiences. Curriculum review should therefore prepare students for both current vacancies and evolving roles that combine agriculture, environment, technology and development practice.

2.2.4 Priority Professional Areas and Technical Skills

The strongest priority fields are agricultural technology and sustainable agriculture. Agricultural technology was identified by 55 respondents and sustainable agriculture by 51. Environmental protection was selected by 25 respondents, GIS and environmental data by 14, and both water resources and climate adaptation by 11 (Figure 3). Together, these results show that labour-market demand is centred on production systems that are technologically enabled, environmentally responsible and resilient to climate and resource pressures. Employers are therefore not seeking narrow technical specialization alone; they require graduates who can combine production knowledge with resource efficiency, environmental responsibility, digital tools and implementation under real field conditions..

Together, these results show that labour-market demand centres on production systems that are technologically enabled, environmentally responsible, and resilient to climate and resource pressures. These priority areas span a diverse range of employment settings, including government institutions and public-sector programmes, private companies and agri-businesses, agricultural organisations, environmental consultancies, NGOs and development projects, research institutions and laboratories, and technology-enabled production and environmental services. The competencies required therefore extend beyond narrow technical specialisation and include the ability to apply agricultural and environmental knowledge, digital tools, data analysis, communication and problem-solving skills across different professional contexts.

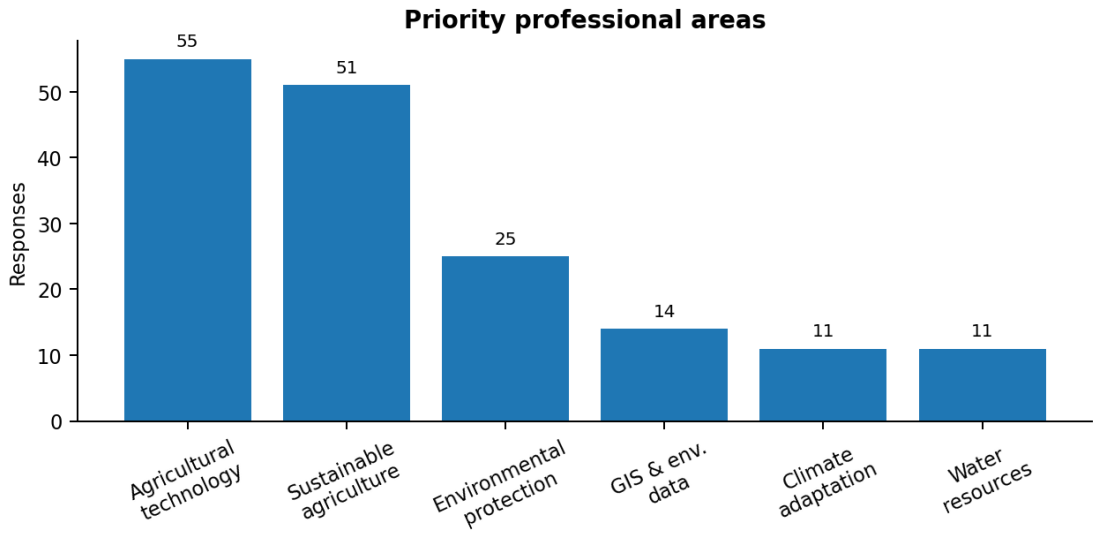


Fig. 3: Priority professional areas identified by respondents.

The technical-skills results reinforce the same pattern. Agricultural technologies are the strongest requirement, selected by 66 respondents, followed by field research (39), environmental monitoring (22), soil and water management (15), data analysis (12), and GIS and remote sensing and data analisys (10) (Figure 4). The qualitative responses further emphasize digital transformation, appropriate artificial intelligence applications, advanced crop and pest management, greenhouse management and climate-smart agriculture. These competencies should not be treated as isolated topics. They should be embedded through practical demonstrations, real datasets, field exercises, technology-based assignments and multidisciplinary student projects that require students to interpret evidence and recommend workable solutions.

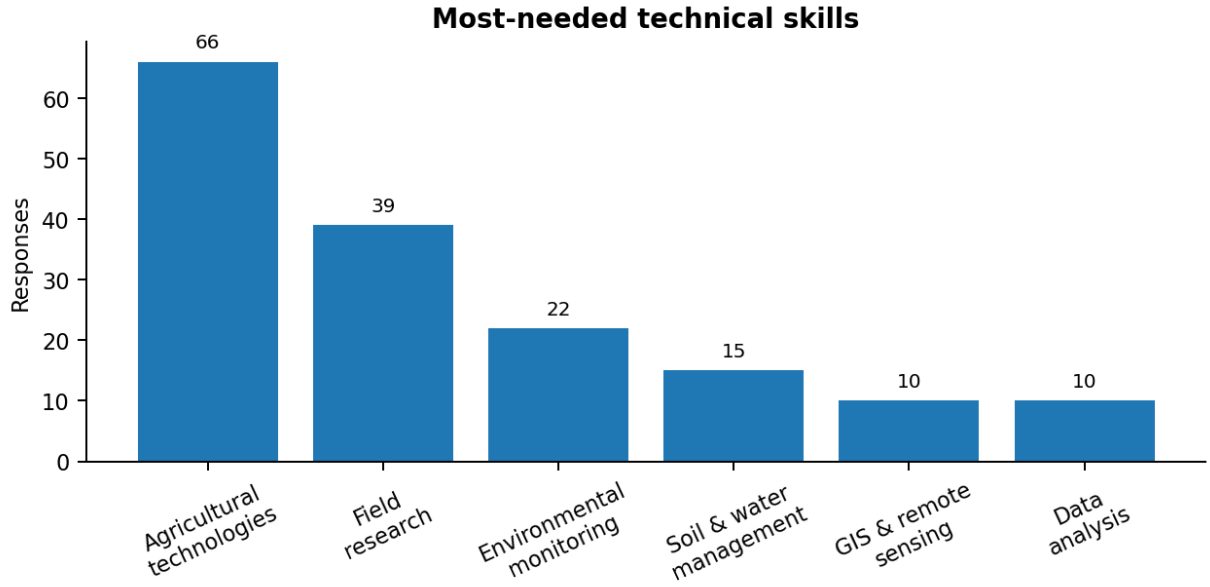


Fig. 4: Most-needed technical skills

Priority area	Recommended curriculum response
Agricultural technology and smart agriculture	Introduce applied agritech tools, modern farming techniques, practical demonstrations, technology-based assignments, climate-smart production and appropriate AI-supported applications.
Sustainable agriculture	Strengthen sustainable production, resource efficiency, resilience, climate adaptation, environmental responsibility and links to food security.
Environmental monitoring	Use field observation, monitoring instruments, environmental sampling, impact assessment and interpretation of real field data.
GIS and remote sensing	Integrate mapping, spatial analysis, remote-sensing basics, environmental-data interpretation and decision-oriented applications.
Soil and water management	Build practical learning around water-resource planning, irrigation, soil quality, conservation and climate-related scarcity.
Data analysis	Embed data handling, analysis, reporting, digital transformation and evidence-based decision-making in student projects.

Table 2: Recommended curriculum responses according to priority areas

2.2.5 Graduate Skills Gap

The most consistent weakness identified in recent graduates is insufficient practical exposure. After harmonising all responses to the common category framework, practical skills were identified in 78 responses, technical-knowledge gaps in 32, limited industry experience in 24, communication weaknesses in 19 and weak problem-solving in 17 (Figure 5). The wider comments also identify limited professional English, entrepreneurship and innovation skills. These gaps show that graduates may possess theoretical knowledge but struggle to transfer it into field performance, project implementation and workplace decision-making, increasing the amount of additional training required after recruitment.

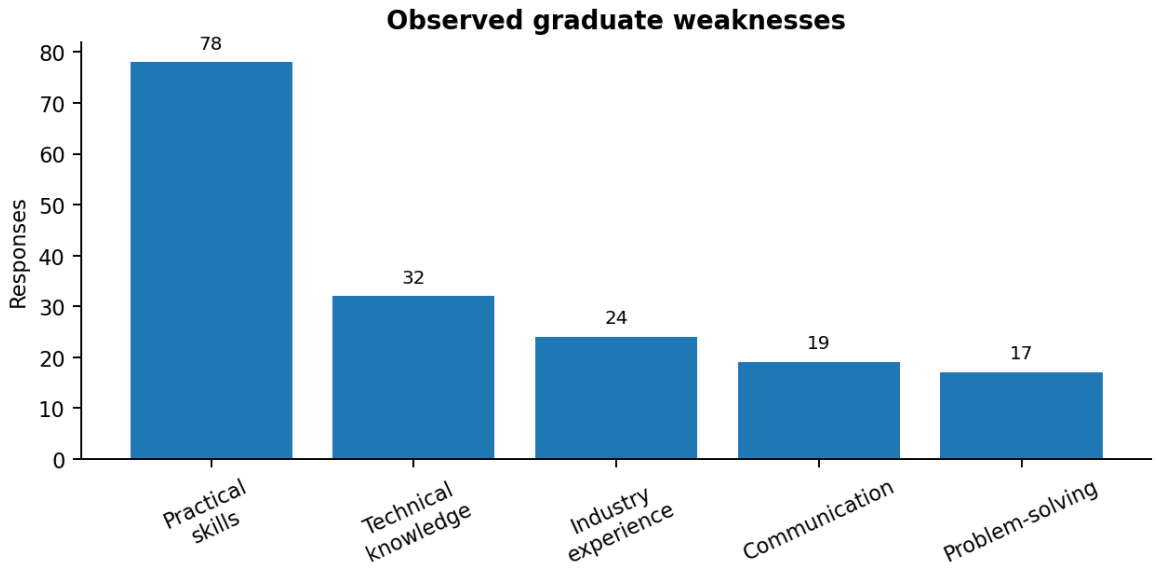


Fig. 5: Observed weaknesses among recent graduates.

The findings show that employability should be treated as demonstrated competence rather than knowledge alone. Students should complete field assignments, laboratory tasks, practical projects, workplace simulations, presentations, teamwork exercises and problem-based assessments. They should also have repeated opportunities to plan activities, analyse data, write technical reports, manage time and resources, communicate with stakeholders and defend proposed solutions. Soft and managerial skills are not supplementary: teamwork, problem-solving, communication, project management, leadership, adaptability, critical thinking, professional ethics and entrepreneurship determine whether technical knowledge can be used effectively in real organisations.

2.2.6 What Universities Should Improve

Respondents prioritised practical training above all other improvement measures. In the integrated results, practical training was selected in 87 responses, industry collaboration in 39, internships in 26, curriculum updating in 11 and emerging-field courses in 7 (Figure 6). Improvement should therefore occur at programme level rather than through occasional extracurricular activities. Universities should rebalance theory and application through laboratory work, field activities, practical assignments, project-based learning, applied research, case studies and other forms of experiential learning connected with real professional situations.

Particular attention should be paid to the quality and relevance of internships, rather than considering participation alone as an indicator of success. Internships should include clearly defined learning objectives, academic supervision, coordination with the host organisation, student deliverables, and systematic feedback from both students and employers. These mechanisms would allow universities to assess whether workplace experiences genuinely contribute to professional development and whether the competencies acquired correspond to labour-market expectations.

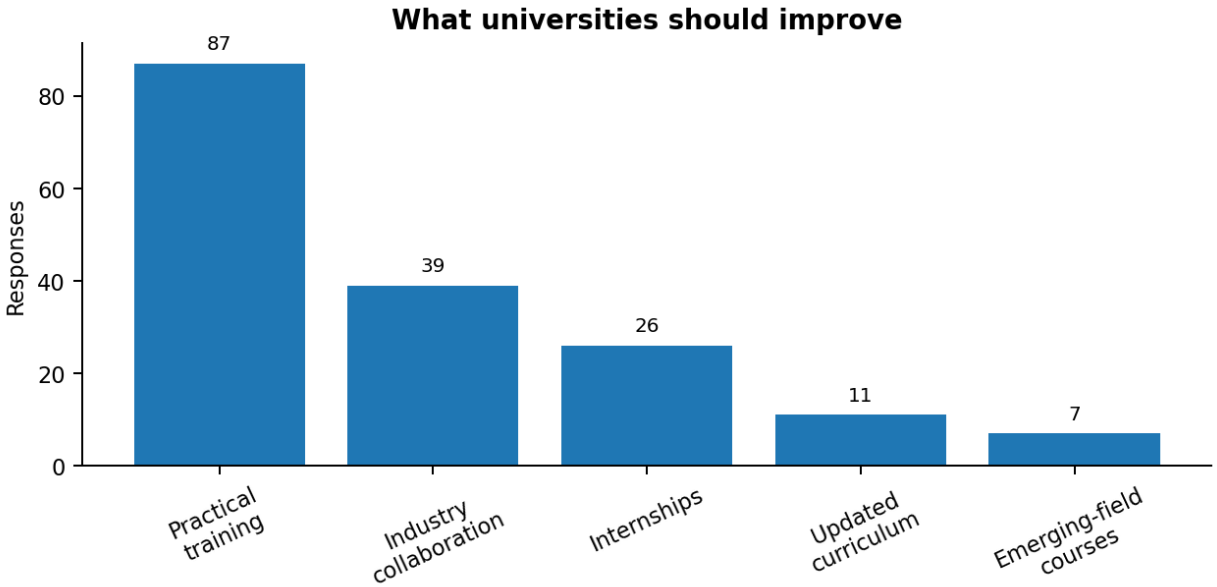


Fig. 6: Priority areas for university improvement.

2.2.7 Alignment Between Academic Programmes and Labour-Market Needs

The integrated evidence indicates that current university programmes do not fully match labour-market needs. Of the 170 respondents, 50 consider the existing academic offer fully aligned, while 120 report partial alignment or no alignment. This perceived gap does not imply that current programmes lack value; rather, it reflects several interconnected areas in which academic preparation does not consistently translate into workplace-ready competence. The most prominent gap concerns practical experience and the application of knowledge in real professional settings. Respondents also identify gaps in technical knowledge and exposure to modern technologies, digital and data-related skills, communication and problem-solving, entrepreneurship and innovation, professional English, and familiarity with industry and workplace requirements. These findings suggest that curriculum review should address not only what students learn, but also how they apply, communicate and integrate their knowledge in professional contexts.

Curriculum review should combine employer and NGO consultations, annual stakeholder feedback, graduate outcome monitoring, and practical validation of learning outcomes. Modules should be strengthened where the evidence is clearest: sustainable and climate-smart agriculture, applied agricultural technology, field research, environmental monitoring, soil and water management, GIS and remote sensing, data analysis, digital and AI-supported applications, project management, and entrepreneurship and employability-related soft skills. Assessment should test what students can perform, analyse, design and communicate, not only what they can reproduce in examinations.

2.2.8 Stakeholder Cooperation Opportunities

The survey identifies a clear opportunity to institutionalize cooperation with employers, public institutions, NGOs, development organisations, research bodies and other labour-market stakeholders. Respondents expressed interest in student training programmes, internships, advisory committees, curriculum development, applied research, joint supervision of student projects, guest lectures and field visits. These mechanisms can improve both the relevance of academic programmes and the capacity of external organisations to identify and prepare future recruits. Cooperation should move from informal personal contacts to documented arrangements with defined responsibilities, schedules, learning objectives and feedback procedures.

Cooperation mechanism	Practical use within MOVE
Student training programmes	Short applied courses, field demonstrations, workplace-linked workshops and sector-specific skills sessions based on identified gaps.
Curriculum development	Employer, NGO and practitioner participation in advisory committees and periodic review of modules, learning outcomes and assessment.
Applied research and research collaboration	Jointly supervised student projects and university-stakeholder studies addressing real agricultural, environmental and development challenges.
Internships	Structured placements with learning objectives, supervision, student outputs, host assessment and post-placement reflection.
Guest lectures and field visits	Exposure to professional expectations, technologies, project implementation, institutional practice and diverse career pathways.
Annual feedback cycle	Recurring review of graduate readiness, emerging competencies and changing labour-market needs.

Table 3

2.2.9 Integrated Interpretation of the Survey Results

The survey findings form a coherent pattern. Labour-market demand is growing, but graduate employability is constrained by a delivery model that remains more theoretical than applied. The same areas identified as future opportunities such as agricultural technology, sustainability, climate adaptation, digital tools and data use, are also areas in which students require more practical exposure. Curriculum modernisation must therefore address content, teaching methods, assessment and external cooperation at the same time.

The evidence also shows that technical and transversal skills are interdependent. A graduate may understand agricultural or environmental concepts but still struggle in employment without communication, teamwork, leadership, critical thinking, problem-solving, project management, entrepreneurship, professional English and digital literacy. These competencies should not be treated as separate or additional training activities; instead, they should be progressively embedded in existing courses, technical projects, field assignments, internships, and assessment activities throughout the curriculum. This integrated approach would allow students to develop transversal competencies while applying disciplinary knowledge in realistic professional contexts.

The appropriate response is a practice-intensive, digitally enabled, climate-responsive and externally connected curriculum. Selected programmes should progressively develop competencies across the years of study, beginning with technical foundations and moving toward field application, data interpretation, multidisciplinary projects, entrepreneurship and supervised workplace experience. This approach would improve immediate employability while also preparing graduates to adapt to changing technologies and environmental pressures.

2.2.10 Preliminary Recommendations from the T2.2 Survey

1. Agree on a consortium-level competency framework covering sustainable and climate-smart agriculture, agricultural technology, environmental monitoring, field research, GIS and remote sensing, data analysis, soil and water management, digital and AI-supported applications, and project management and entrepreneurship.
2. Strengthen practical and field-based learning through laboratories, field visits, demonstrations, real datasets, applied assignments, case studies, supervised projects and problem-based assessment.
3. Embed teamwork, problem-solving, communication, project management, leadership, professional English, innovation and entrepreneurship across the curriculum and assess them in technical contexts.
4. Create structured stakeholder-cooperation pathways through internships, advisory committees, guest lectures, student training programmes, jointly supervised projects, applied research, curriculum consultation and recurring employer feedback.
5. Use the completed survey analysis together with the University of Murcia benchmarking and institutional mapping to guide WP3 curriculum updates, WP4 and WP5 training priorities, and WP6 internship and employability pathways.

Chapter 3

Benchmarking Career Development Centres and Employment Strategies in Universities and Institutions from Kurdistan and Yemen

3. Benchmarking Career Development Centres and Employment Strategies in Universities and Institutions from Kurdistan and Yemen

3.1 Objectives of the benchmarking study

CDCs and related employability services play an increasingly important role in helping universities respond to labour market challenges and support successful transitions from higher education to employment. As universities seek to strengthen graduate employability, developing effective institutional structures, employer engagement mechanisms, internship systems, entrepreneurship support, and evidence-based decision-making processes has become a strategic priority.

The objective of this benchmarking study is to compare how participating universities and institutions organize and implement employability strategies through CDCs and related services. The analysis examines institutional mission, governance, student support, labour market intelligence, employer engagement, internships, placement services, entrepreneurship support and evaluation practices.

By comparing institutional approaches across Kurdistan, Yemen, and the European partner universities in the MOVE consortium, the study aims to identify common patterns and distinctive practices that may help strengthen employability ecosystems within participating institutions.

The analysis is not designed as a ranking; rather, it provides an evidence-informed interpretation of self-reported practices and challenges.

3.2 Methodology

The report is based on a survey completed by representatives of the ten institutions participating in the MOVE project, including universities and employability-related organizations from Kurdistan, Yemen, and Europe.

Territory/role	Institutions included in the survey
Kurdistan	Salahaddin University-Erbil
	University of Duhok
	University of Sulaimani
	Garmian University
	Kurdistan Agricultural Engineering Syndicate
Yemen	University of Aden
	Hadhramout University
	Selah Foundation for Development
European internal benchmarks	Università della Calabria
	Universidad de Murcia

Table. 4: Participating institutions

As all surveyed institutions are members of the MOVE consortium, the benchmarking exercise is intended to facilitate institutional learning, identify transferable practices, and support the development of employability services across the partnership. The inclusion of the European partner universities provides additional reference points for comparison while recognizing that employability strategies must be adapted to the specific contexts, needs, and capacities of each institution.

The questionnaire is organized into eight substantive blocks: CDC mission, structure and governance; employment observatories; career guidance and student support; university-business relations; internships and work-based learning; placement services; entrepreneurship support; and impact measurement and evaluation.
Survey responses were read thematically and compared across institutions and territories. Particular attention was paid to whether each response described operational mechanisms, emerging practices, general intentions or limited evidence. The analysis uses only the information provided in the survey.

The main limitation is that the dataset consists of self-reported information. The degree of detail differs substantially between institutions. Some responses provide extensive descriptions of operational procedures, while others are brief or general.
Consequently, differences identified in the report should not necessarily be interpreted as differences in performance, but may also reflect variations in reporting detail and institutional documentation.
To address this limitation, the report distinguishes between consolidated practices and areas that require further evidence or institutional development.

3.3 Career Development Centres (CDC): mission, structure and governance

The organization and governance of CDCs constitute a critical dimension of institutional employability strategies. Beyond the services they provide, CDCs reflect how universities prioritize graduate employability, engage with employers, coordinate support activities, and integrate labour market needs into their institutional structures. This section analyses the mission, objectives, governance arrangements, staffing models, leadership expectations, and funding mechanisms reported by participating institutions to identify common patterns and transferable practices across the MOVE consortium.

3.3.1 Mission and purpose

The mission of CDCs is consistently framed around employability, professional skills, labour market transition and stronger links between academic education and employment.
Kurdish institutions tend to describe the CDC as a bridge between students, graduates and employers. Yemeni responses also emphasize alignment between learning outcomes and labour market needs, although the evidence shows more uneven levels of organizational consolidation. The European benchmark institutions provide examples of broader employability ecosystems linked to institutional strategy, innovation and regional development.

3.3.2 Strategic objectives

The most common strategic objectives include bridging the gap between education and employment, improving career readiness, supporting CV writing and interviews, facilitating internships, strengthening employer relations, promoting entrepreneurship and improving graduate employment outcomes. The University of Duhok, Salahaddin University-Erbil, Garmian University and Universidad de Murcia provide particularly broad descriptions of strategic objectives, while Hadhramout University show more selective or less developed evidence.

3.3.3 Organisational position within the university

A clear organizational location is one of the strongest differentiating factors. Several Kurdish responses describe CDCs as central units, directorates, or Centres linked to university leadership or coordinated with colleges and departments. Universidad de Murcia and Università della Calabria also provide examples of employability services embedded in wider university structures. In contrast, some Yemeni responses suggest more distributed or quality-assurance-related arrangements rather than a fully visible CDC structure.
The findings suggest that institutional visibility and formal integration into university governance structures may be important factors in the development and sustainability of employability services.

3.3.4 Staffing models and workload distribution

Staffing models differ considerably across the participating institutions. Among the most developed examples, the University of Duhok reports a comparatively well-developed CDC structure combining specialised functions with college-level coordinators. Its activities include graduate tracking, employer database management, vacancy dissemination, candidate matching and recruitment support, internships across private, public and NGO sectors, entrepreneurship activities, feedback mechanisms and internal reporting. Salahaddin University-Erbil and the Selah Foundation for Development also report relatively structured models based on central coordination, specialised functions and links with colleges or programme coordinators. A second group of institutions describes workload distribution primarily by service area rather than through highly formalised organisational units. This is visible in the University of Aden, the University of Sulaimani and the Kurdistan Agricultural Engineering Syndicate. Hadhramout University reports an established organisational and administrative structure with a clear hierarchy governing academic and administrative procedures across the university. However, the available information provides limited detail on the specific staffing and distribution of responsibilities for CDC and employability-related functions. Garmian University also provides limited detail on these specific functions.The European institutions in the dataset, Università della Calabria and Universidad de Murcia, illustrate more diversified models, in which employability-related work is distributed across academic, administrative, technical, internship, guidance, entrepreneurship and employer-relations functions. Overall, the comparison suggests that the most mature staffing models combine central coordination, specialized roles and faculty-level connections, while less developed models rely on smaller teams or broader institutional units with multiple responsibilities.

3.3.5 Expectations from university leadership

University leadership expectations are broadly similar across the dataset: improving employability, strengthening employer links, supporting internships, increasing training opportunities, contributing to curriculum relevance and enhancing the university's public reputation. The most developed responses also link CDC performance to quality assurance, accreditation, rankings, alumni engagement and strategic planning. This indicates that employability is increasingly understood as an institutional responsibility rather than an isolated student service.

3.3.6 CDC as a bridge between academia and labour market

All substantive responses converge on the idea that the CDC serves as a bridge between academic learning and labour market needs. This function is described in operational terms by institutions such as the University of Duhok, University of Aden, University of Sulaimani, Garmian University, Selah Foundation for Development Università della Calabria and Universidad de Murcia, which refer to mechanisms such as internships, employer engagement, training, curriculum alignment, labour market intelligence, networking activities and recruitment support. Other institutions describe the bridge function more generally, focusing on the intended alignment between university learning, professional skills and employment opportunities.

3.3.7 Recent developments and innovations

Recent developments include increased internship opportunities, stronger employer engagement, expansion of online communication, greater use of surveys and reports, and gradual institutional strengthening. The University of Duhok and Kurdish institutions more generally report visible development in training, internships and employer relations. European benchmark responses show more consolidated innovation ecosystems, while some Yemeni responses suggest that development is still emerging and needs further formalization.

The evidence suggests that many institutions are currently moving from relatively traditional career support approaches towards more comprehensive employability ecosystems that combine guidance, employer engagement, entrepreneurship, and labour market intelligence.

3.3.8 Funding models

Funding models are mixed. Reported sources include internal university budgets, government funding, private sector partnerships, NGOs, foundations and project-based collaborations. The dataset suggests that reliance on project-based or external funding may support innovation but can limit continuity. A sustainable CDC model requires a stable institutional budget complemented by external partnerships for specific activities, programs or events.

Viewed as a whole, the findings reveal substantial diversity in how CDCs are organized and managed across participating institutions. While levels of institutional maturity vary, a common direction of travel is evident: universities are increasingly seeking to strengthen employability through more structured governance arrangements, stronger employer engagement, expanded career services, and improved coordination among academic and

labour market stakeholders. These findings provide useful guidance for institutions seeking to further develop their employability support systems within the MOVE framework.

3.4 Employment Observatories

Labour market intelligence is an increasingly important component of university employability strategies. Employment observatories and related monitoring systems provide institutions with information on graduate outcomes, employer needs, labour market trends, and emerging skill demands. This evidence can support strategic decision-making, curriculum development, career guidance services, and employer engagement activities. This section examines the extent to which participating institutions have developed observatory functions and how labour market information is collected, analyzed, and used.

3.4.1 Institutional approach

Employment observatories are among the most unevenly developed elements in the dataset. Some universities, such as Salahaddin University-Erbil, the University of Aden, the University of Sulaimani, Garmian University and Universidad de Murcia, describe observatory-type functions linked to graduate tracking, labour market analysis and employer needs.
Other institutions report only partial or equivalent practices. The University of Duhok and the Selah Foundation for Development conduct graduate tracking and labour market information activities but do not clearly describe a formal observatory. Hadhramout University mentions monitoring and follow-up, although with limited detail.
A third group does not have a formal employment observatory. This includes the Kurdistan Agricultural Engineering Syndicate. Università della Calabria indicates that this function is mainly managed at the national level.

3.4.2 Graduate tracking systems

Graduate tracking is one of the most relevant functions identified in the survey, although its level of development differs. Some universities collect relatively detailed information on graduates' employment status, sector of employment, job relevance, time-to-employment and employer feedback. This is evident, for example, at Salahaddin University-Erbil, the University of Aden, the University of Sulaimani, the Selah Foundation for Development, Garmian University, Università della Calabria and Universidad de Murcia.
Other institutions collect more basic graduate information. The University of Duhok reports data on graduates' degrees, graduation year, department, employment situation and first employment, while Hadhramout University focuses mainly on academic background and graduation data.

3.4.3 Employer needs analysis

Employer needs analysis is usually conducted through employer relationships, feedback after events or internships, direct communication, labour market reports and partner consultations. Salahaddin University-Erbil, the University of Aden, the University of Sulaimani, Garmian University and Universidad de Murcia provide clear examples of how information about skills gaps, recruitment preferences, labour market trends and employer expectations is collected. In some cases, this analysis is more sector-specific or less formalized. The Kurdistan Agricultural Engineering Syndicate links labour market information to the agricultural engineering sector.

3.4.4 Labour market trend monitoring

Labour market trend monitoring appears in several responses, especially in context where institutions collect data on emerging professional profiles, demanded skills, employment sectors or changes in recruitment patterns. Salahaddin University-Erbil, Garmian University, Università della Calabria and Universidad de Murcia provide relevant examples of this type of monitoring.
Some institutions use labour market information mainly to support curriculum or service improvement. The University of Duhok refers to market-relevant skills such as digital literacy, entrepreneurship and soft skills, while the University of Sulaimani uses labour market information to guide training activities, internships and curriculum revisions.

3.4.5 Use of labour market information in decision making

Regarding labour market information, it is used in different ways across the institutions, especially to support curriculum updates, program design, employability training and CDC service improvement. Salahaddin University-Erbil, the University of Aden, the University of Sulaimani, Garmian University, Università della Calabria and Universidad de Murcia provide examples of using labour market data to align academic programs and career services with labour market needs.
The Kurdistan Agricultural Engineering Syndicate and the Selah Foundation for Development link labour market information to training priorities and professional support. Hadhramout University does not provide clear evidence of how this information influences decision making.

3.4.6 Main challenges

The main challenges in this area are the difficulty of obtaining reliable, updated and comparable labour market data. Several institutions, including Salahaddin University-Erbil, the University of Duhok, the Selah Foundation for Development, the University of Sulaimani, Garmian University, Università della Calabria and Universidad de Murcia, mention problems such as fragmented sources, outdated information, low response rates, graduate tracking difficulties and limited employer participation.
Other challenges are related to institutional capacity. The Kurdistan Agricultural Engineering Syndicate highlights difficulties in connecting with the private sector and identifying professional skills needs.
The findings indicate that employment observatories remain among the least consolidated components of university employability ecosystems. Although many institutions have developed individual practices, such as graduate tracking, employer consultation, or labour market monitoring, fully integrated observatory systems remain relatively uncommon. Strengthening labour market intelligence capacities, improving data collection processes, and enhancing the use of evidence in institutional decision-making are important priorities for the future development of CDCs across the MOVE consortium.

3.5 Career Guidance and Student Support Services

Career guidance and student support services are core functions of CDCs. These services help students and graduates understand their strengths, explore career opportunities, develop employability skills, and make informed career decisions. Survey responses offer insight into

the range of guidance services offered, the degree of personalization, and the mechanisms used to ensure service quality and effectiveness.

3.5.1 Career guidance services

The most frequent services are individual counselling, CV and cover letter support, interview preparation, employability workshops, job-search guidance, career fairs, internships and access to job opportunities. The University of Duhok, Salahaddin University-Erbil, Garmian University, the University of Aden and Universidad de Murcia provide particularly relevant examples of integrated guidance services.
Across the dataset, career guidance is generally understood as a combination of information provision, skills development, and personalized support designed to facilitate students' transition into employment.

3.5.2 Skills assessment methodologies

Skills assessment is usually described through counseling sessions, self-assessment tools, career assessments, interviews, workshops and reflection on interests, values and skills at institutions like Salahaddin University-Erbil, the Selah Foundation for Development, the University of Aden, the University of Sulaimani, Garmian University and Universidad de Murcia. In many cases, skills assessment remains advisory rather than based on validated instruments. The Kurdistan Agricultural Engineering Syndicate and Università della Calabria emphasize practical exposure, labour market insights, or internships rather than formal assessment tools. The University of Duhok and Hadhramout University provide insufficient detail to identify a specific skills assessment methodology. This indicates the need for a more standarised approach to skills diagnostics.
This suggests that although skills assessment is widely recognized as important, more standardized and evidence-based diagnostic approaches remain relatively uncommon across the participating institutions.

3.5.3 Career planning support

Career planning support includes helping students define career goals, prepare action plans, identify skills gaps, access internships and build employability portfolios. More advanced responses given in Salahaddin University-Erbil, the University of Aden, Garmian University and Universidad de Murcia connect planning with labour market information and individualised advising. Less developed responses describe workshops or general academic advice rather than structured career plans.
The comparison indicates that institutions with more developed guidance systems tend to integrate career planning with labour market intelligence, personalized counseling, and follow-up activities.

3.5.4 Personalised guidance approaches

Personalized guidance is most clearly developed in institutions that adapt services according to academic level, field of study, career readiness or specific student needs. Salahaddin University-Erbil, the University of Aden, the University of Sulaimani, Garmian University, Università della Calabria and Universidad de Murcia provide the clearest examples, including differentiated support for first-year students, final-year students, graduates, master's and

PhD students, high-achieving students, at-risk students or students with disabilities and special needs. The Kurdistan Agricultural Engineering Syndicate and the Selah Foundation for Development refers to a differentiated and inclusive approach. The University of Duhok and Hadhramout University provide insufficient evidence.
These findings suggest that personalization is a key characteristic distinguishing more mature employability support systems from more general advisory approaches.

3.5.5 Quality assurance and follow-up mechanisms

Quality assurance and follow-up are most clearly developed at Salahaddin University-Erbil, the University of Aden, Garmian University and Universidad de Murcia, where advising quality is supported through standardised procedures, record-keeping, student tracking, satisfaction surveys, feedback mechanisms, outcome monitoring and regular follow-up. The University of Sulaimani, the Selah Foundation for Development and the Kurdistan Agricultural Engineering Syndicate also refer to follow-up and continuous improvement, although with less detail. Università della Calabria mentions trained staff, standardised procedures and feedback, but also notes that follow-up is not systematically maintained. The Hadhramout University and the University of Duhok provide insufficient evidence of a consolidated quality assurance system. The findings indicate that career guidance services are relatively well developed across the MOVE consortium, although important differences remain in the degree of personalization, the sophistication of skills assessment methodologies, and the implementation of quality assurance mechanisms. Strengthening these areas may contribute to more effective, evidence-based employability support services.

3.6 University-Business Relations

University-business relations are a central component of contemporary employability strategies. Effective collaboration with employers can improve curriculum relevance, facilitate internships and recruitment opportunities, provide labour market intelligence, and strengthen graduates' transition into employment. This section examines how participating institutions engage with employers, manage external relationships, organize networking activities, and assess the quality of their collaborations.

3.6.1 Employer engagement strategies

Employer engagement is conducted through direct outreach, partnerships, job fairs, internships, alumni networks, Memoranda of Understanding (MoUs), sector contacts, NGOs, public bodies and private companies. Kurdish responses emphasize proactive employer relations and partner networks. Yemeni responses identify employer engagement as necessary but often constrained by limited formal structures or weak industry linkages. On the other hand, European benchmark responses show more structured models connected to innovation, regional ecosystems and institutional databases.

Across the dataset, employer engagement is recognized as a strategic mechanism to strengthen graduate employability, although the degree of formalization varies considerably between institutions.

3.6.2 Employer relationship management

Employer relationship management is strongest where institutions maintain centralized employer databases. Salahaddin University-Erbil, the University of Duhok, Garmian University and Universidad de Murcia describe database-based or structured approaches. In weaker models, employer relations depend on individual faculty contacts, informal networks or ad hoc cooperation.
A clear distinction emerges between institutions that manage employer relations through formal systems and those that rely primarily on personal or departmental contacts. The former appears better positioned to ensure continuity, monitor collaboration, and scale employer engagement.

3.6.3 Value proposition for employers

The value offered to employers includes access to talent, reduced recruitment costs, internship pipelines, support in vacancy dissemination, candidate matching, recruitment events and collaboration with academic units. Some institutions also emphasize employers' influence on curriculum relevance and skill development. This is especially clear at the University of Aden, which refers to employer input into graduate skill development. This value proposition should be communicated more explicitly in institutions where employer engagement is still developing.
The findings indicate a growing recognition that sustainable employer engagement depends on mutual benefit. Institutions that actively involve employers in academic and training activities tend to offer a more comprehensive value proposition than those focused primarily on recruitment support.

3.6.4 Networking and recruitment events

Institutions use a range of activities to connect employers with students. Job fairs, career fairs and employability forums are mentioned by Salahaddin University-Erbil, the University of Aden, the University of Sulaimani, Garmian University, Università della Calabria and Universidad de Murcia, with Salahaddin University-Erbil identifying job fairs as its main mechanism for labour market connection. Recruitment events and on-campus recruitment are especially visible in the University of Aden, Garmian University, Università della Calabria and Universidad de Murcia. Employer or company presentations are reported by Salahaddin University-Erbil, the University of Sulaimani, Garmian University, Università della Calabria and Universidad de Murcia. Other activities include workshops, guest lectures, internships, field training, networking sessions, digital job posting, workplace visits and company-student projects. However, the transition from event organization to measurable employment outcomes remains uneven.
This suggests that although networking activities are widely implemented, institutions still struggle to systematically evaluate their impact on graduate employment.

3.6.5 Challenges in employer engagement

Challenges include limited employer awareness of CDC services, weak labour market

demand in some sectors, mismatch between graduate skills and employer expectations, limited incentives for employer participation and insufficient follow-up after events.
These issues are especially visible in the responses from the University of Aden, University of Sulaimani and Garmian University. Salahaddin University-Erbil highlights employer skepticism about graduate skills and responds through value-based engagement and stronger alignment with market demands. Garmian University and Universidad de Murcia also mention competition for employers, companies or recruitment channels. Economic, geographical and labour market constraints appear in the responses from the Selah Foundation for Development, University of Sulaimani, the Kurdistan Agricultural Engineering Syndicate and Universidad de Murcia.
The challenges identified are not exclusively institutional but also reflect broader labour market conditions and employer perceptions of graduate preparedness.

3.6.6 Indicators of relationship quality

Employer relationship quality is measured through different indicators. Salahaddin University-Erbil, the University of Aden, the University of Sulaimani, Garmian University, and Università della Calabria emphasize the continuity, depth, and stability of collaboration, including repeat participation in activities and long-term partnerships. Internship, placement and hiring outcomes are also used by Salahaddin University-Erbil, the University of Duhok, the University of Aden, the University of Sulaimani, Garmian University and Università della Calabria. Employer satisfaction and feedback are mentioned by Universidad de Murcia. Some institutions also link relationship quality to curriculum relevance, graduate skills and academic collaboration, especially Salahaddin University-Erbil, and Garmian University. Hadhramout University and the Kurdistan Agricultural Engineering Syndicate provide limited evidence for this item.
The findings indicate that university-business relations are becoming an increasingly strategic dimension of employability support across the MOVE consortium. Although development levels vary considerably, the most effective approaches combine structured employer relationship management, a clear value proposition, regular engagement activities, and mechanisms to monitor outcomes and partnership quality.

3.7 Internship Models and Work-Based Learning

3.7.1 Types of internships

Internships are available in private companies, public institutions, NGOs, hospitals, schools, ministries, research organizations, startups and sector-specific professional settings. Some institutions distinguish between curricular-extracurricular (Università della Calabria), mandatory-voluntary (Garmian University), short-term and longer placements (University of Sulaimani). The range of opportunities is broader where employer networks are stronger, like in the University of Duhok or the University of Aden. Salahaddin University-Erbil and the Kurdistan Agricultural Engineering Syndicate emphasize field-specific practical experience. By contrast, the Universidad de Murcia describes internship management more generally,

and Hadhramout University reports that, in addition to student mobility, students undertake summer training, field visits and practical field activities as part of their study programmes. Selah Foundation for Development mentions internal activities rather than internships in external institutions.
The findings indicate that internship provision is strongly influenced by the breadth and quality of institutional employer networks and by the degree of formal integration of work-based learning into academic programs.

3.7.2 Internship management processes

Internship management is strongest where institutions describe a complete process for sourcing, negotiating and formalizing placements. Salahaddin University-Erbil, the University of Aden, Garmian University, Università della Calabria and Universidad de Murcia provide the clearest models, including employer outreach, university-industry networks, negotiation of learning objectives, roles, duration and supervision, and formalization through MoUs, official agreements, placement letters or learning contracts. The University of Sulaimani also describes an operational process, although with less detail, while the Kurdistan Agricultural Engineering Syndicate and Hadhramout University provide more general references to structured processes, MoUs or monitoring. The University of Duhok and the Selah Foundation for Development provide evidence of internship sourcing, but offer insufficient detail on negotiation and formalization.
A clear distinction emerges between institutions that manage internships through structured processes and those that rely on more informal arrangements. The former appears better positioned to ensure quality, consistency, and accountability.

3.7.3 Partnership agreements

Partnership agreements for internships are formalized in different ways across the institutions. Salahaddin University-Erbil, the University of Aden and Garmian University explicitly mention MoUs or formal agreements with employers, usually linked to roles, responsibilities, learning objectives, supervision and duration. Università della Calabria and Universidad de Murcia describe more formal university-based models through official agreements, learning contracts, collaboration agreements and internship documentation. The University of Sulaimani uses agreements or official correspondence, while the University of Aden also refers to placement letters and internship guidelines. The Kurdistan Agricultural Engineering Syndicate and the Selah Foundation for Development mention a structured process with partner organizations but do not specify the legal instrument used. The University of Duhok provides insufficient detail on the formalization process. Hadhramout University mentions MoUs, but without enough detail to assess the model fully.
The comparison indicates that formal agreements are increasingly seen as a key mechanism for clarifying expectations, protecting stakeholders, and preserving the educational value of internship experiences.

3.7.4 Monitoring and evaluation

Several institutions monitor employability outcomes, including Salahaddin University-Erbil, the University of Duhok, the University of Aden, Garmian University and Universidad de Murcia, which refer to graduate employment, internship placements, job opportunities,

time-to-employment, job-field alignment and matching effectiveness. Other indicators focus on student participation in CDC activities, workshops, training sessions, career events and guidance services, as seen at Salahaddin University-Erbil, the University of Duhok, the University of Sulaimani and Universidad de Murcia.
Employer engagement is also monitored by institutions such as the University of Aden, the University of Sulaimani, Garmian University and Universidad de Murcia through indicators related to partners, vacancies, repeat collaborations or collaboration agreements. The Kurdistan Agricultural Engineering Syndicate reports a structured KPI framework, but without specifying concrete indicators. By contrast, Hadhramout University, the Selah Foundation for Development and Università della Calabria do not provide evidence of formal KPIs for this item.
The evidence suggests that monitoring systems are generally more developed for participation and employment outcomes than for assessing the quality and long-term impact of internships.

3.7.5 Feedback systems

Feedback is collected through surveys, questionnaires, evaluation forms, interviews, reports, focus groups, meetings or direct communication with students, alumni and employers. The clearest examples are Salahaddin University-Erbil, the University of Duhok, the University of Aden, the University of Sulaimani, Garmian University, Università della Calabria and Universidad de Murcia.
This feedback is used to improve training, internships, career guidance, placement services, employer relations and CDC quality. The Kurdistan Agricultural Engineering Syndicate, the Selah Foundation for Development and Hadhramout University provide only limited detail.
The findings reveal substantial diversity in internship and work-based learning models across the MOVE consortium. While most institutions recognize the importance of practical experience and maintain some form of internship provision, significant differences remain in the degree of formalization, management processes, partnership arrangements, and monitoring systems. Institutions with stronger employer networks and more structured procedures tend to offer more comprehensive work-based learning opportunities, providing useful reference points for future development across the partnership.

3.8 Placement Services and Employment Intermediation

3.8.1 Vacancy management systems

Vacancy management ranges from structured systems to informal dissemination. Vacancy management is more developed at the University of Duhok, Garmian University, Salahaddin University-Erbil and Universidad de Murcia. These institutions describe centralised processes for collecting, verifying, publishing and following up job offers, often including employer databases, official dissemination channels, candidate matching or application support.
The University of Aden, the University of Sulaimani and the Kurdistan Agricultural Engineering Syndicate show operational but simpler models, mainly based on collecting and sharing vacancies with students and graduates. Less developed models appear at Hadhramout University, which only mentions announcing vacancies on the website.

Università della Calabria and the Selah Foundation for Development state that they do not manage job offers.

3.8.2 Employer recruitment processes

Recruitment processes usually involve employer submission of vacancies, CDC verification, dissemination to students, support for applications and sometimes organization of interviews or recruitment events. The University of Murcia benchmark describes a more advanced online placement agency model with candidate pre-selection and employer support.

3.8.3 Candidate matching mechanisms

Candidate matching is clearly present in the responses from Salahaddin University-Erbil, University of Duhok, University of Aden, Kurdistan Agricultural Engineering Syndicate, Garmian University, the Selah Foundation for Development, Università della Calabria and Universidad de Murcia, which describe mechanisms such as CV review, academic background checks, skills matching, eligibility screening, referral of suitable candidates or pre-selection. University of Sulaimani represents an intermediate case: it does not formally screen candidates on behalf of employers, but it supports applications and may suggest suitable candidates. By contrast, Hadhramout university report the absence of a formal matching system and describe support as informal, usually mediated by faculty or departmental contacts.

3.8.4 Recruitment support services

Recruitment support services are most clearly described by the University of Duhok, University of Aden, Garmian University, Università della Calabria and Universidad de Murcia, which refer to concrete mechanisms such as vacancy dissemination, employer presentations, recruitment events, interview coordination, candidate pre-selection, shortlisting, CV databases and matching with employer requirements. Salahaddin University-Erbil and the University of Sulaimani provide more limited but identifiable support, mainly by disseminating vacancies, facilitating communication and organizing recruitment-related activities. By contrast, Hadhramout University, the Selah Foundation for Development and Kurdistan Agricultural Engineering Syndicate provide general statements without enough operational detail.

3.8.5 Placement effectiveness

Placement effectiveness is measured with different degrees of sophistication across institutions. Salahaddin University-Erbil, University of Duhok, University of Aden, Garmian University, Università della Calabria and Universidad de Murcia identify concrete indicators such as job offers, employment rates, internship-to-job conversion, time-to-employment, job fit, employer satisfaction, repeat employer engagement and student or graduate satisfaction. University of Sulaimani and Hadhramout University also refer to relevant outcomes, although their answers suggest a more basic tracking approach based on employment or internship results, feedback and employer continuity. The Kurdistan Agricultural Engineering Syndicate and the Selah Foundation for Development give a broad answer without specifying indicators.

3.9 Entrepreneurship Support Ecosystems

Entrepreneurship is increasingly recognized as a key dimension of graduate employability and regional development. Beyond supporting business creation, entrepreneurial ecosystems within universities foster innovation, problem-solving, self-employment opportunities, and stronger connections with external stakeholders. This section analyzes the structures, target groups, activities, partnerships, and best practices that shape entrepreneurship support across participating institutions.

3.9.1 Entrepreneurship structures and units

Entrepreneurship support is unevenly institutionalized across the participating institutions. The clearest examples of dedicated or structured entrepreneurship support are found at the University of Duhok, University of Aden, Università della Calabria and Universidad de Murcia, where entrepreneurship is linked to specific units, programs or innovation structures. Salahaddin University-Erbil presents a CDC-led model, in which entrepreneurship is promoted through the CDCs rather than through a separate specialized unit. University of Sulaimani show developing or partially formalized models, with activities implemented through departments, quality structures or planned future units. Hadhramout University does not provide evidence on this point. The Selah Foundation for Development mentions small-scale financing support.
These findings show that entrepreneurship support can be embedded either in dedicated entrepreneurship units or integrated into broader employability and career development structures.

3.9.2 Target groups

The main target groups for entrepreneurship support are students and recent graduates, especially those interested in developing business ideas, launching startups or improving their employability through self-employment. This focus is visible in the responses from Salahaddin University-Erbil, University of Duhok, University of Aden, University of Sulaimani, Garmian University and Universidad de Murcia. Some institutions broaden the target population to include alumni, researchers, PhD students, academic staff or faculty mentors, particularly Università della Calabria, Universidad de Murcia, University of Duhok and Garmian University. Evidence is not provided in Hadhramout University and is more general in the Kurdistan Agricultural Engineering Syndicate. The Selah Foundation for Development mentions their target groups are young people, graduates, unemployed youth, women and vulnerable groups.
The evidence indicates that institutions with more developed entrepreneurial ecosystems tend to engage a broader range of stakeholders, extending beyond students and recent graduates to include researchers, faculty members, and alumni.

3.9.3 Entrepreneurship programs and activities

Entrepreneurship activities are most developed where institutions report concrete programs such as workshops, seminars, mentoring, startup competitions, hackathons, pitch events, innovation challenges and networking activities. These practices are particularly visible at the University of Duhok, University of Aden, the Selah Foundation for Development, Garmian

University, Università della Calabria and Universidad de Murcia. Salahaddin University-Erbil also reports entrepreneurship-related activities through colleges, departments and the CDC, while the University of Sulaimani describe more occasional or developing activities rather than fully consolidated annual programs. Hadhramout University does not provide sufficient evidence of specific entrepreneurship activities.
The comparison suggests that the maturity of entrepreneurship ecosystems is reflected not only in the number of activities offered but also in the continuity, structure, and integration of those activities within institutional strategies.

3.9.4 From idea to startup

The idea to startup process is described at different levels of development. The most structured pathways are found at the University of Aden, Università della Calabria and Universidad de Murcia, where responses include stages such as idea generation, validation, mentoring, business modeling, market analysis, incubation, access to experts, funding support, startup launch and follow-up. Salahaddin University-Erbil, University of Duhok and Garmian University describe partially structured processes centreed on ideation, mentoring, feasibility analysis, prototyping, business planning and networking. University of Sulaimani show more informal or developing pathways, based mainly on academic projects, faculty guidance or emerging support mechanisms. Hadhramout University and the Selah Foundation for Development provide no clear evidence of an idea-to-startup process.
A key differentiating factor across institutions is the extent to which support extends beyond idea generation to include incubation, funding access, and post-launch support.

3.9.5 External partnerships

External partnerships are a key component of entrepreneurship support in several institutions. Salahaddin University-Erbil, University of Duhok, University of Aden, University of Sulaimani, Garmian University, Università della Calabria and Universidad de Murcia describe cooperation with companies, NGOs, public institutions, foundations, investors, innovation ecosystems or development organizations. These partnerships support mentoring, training, internships, competitions, recruitment, innovation activities and access to entrepreneurial networks. Hadhramout University provides evidence of project-based collaboration with local NGOs and international organizations, but not necessarily as part of a consolidated entrepreneurship ecosystem.
Across the dataset, external partnerships emerge as a critical enabler of entrepreneurial support, providing expertise, mentoring, networking opportunities, and access to entrepreneurial ecosystems.

3.9.6 Good practices in entrepreneurial universities

The strongest examples of entrepreneurial university practice are found in the University of Duhok, University of Aden, Garmian University, Università della Calabria and Universidad de Murcia, where entrepreneurship is supported through dedicated structures, training, mentoring, startup development, competitions, incubation or ecosystem collabouration. Salahaddin University-Erbil also provides a relevant CDC-led model, particularly through mentoring, prototyping and external partnerships. University of Sulaimani represents a developing model, with entrepreneurship activities present but not yet fully centralized

or formalized. By contrast, Hadhramout university response provides limited evidence of entrepreneurship support.
Overall, the findings reveal considerable variation in the degree of institutionalization of entrepreneurship support across participating institutions. While some universities have developed relatively comprehensive entrepreneurial ecosystems, others are still formalizing structures, programs, and partnerships. The experiences identified in this benchmarking exercise provide valuable reference points for strengthening entrepreneurship support within the MOVE consortium.

3.10 Impact Measurement and Evaluation

3.10.1 KPIs used by CDCs

The use of KPIs varies significantly across institutions. The most developed approaches are found at Salahaddin University-Erbil, University of Duhok, University of Aden, University of Sulaimani, Garmian University and Universidad de Murcia, which identify indicators such as student participation, internships, job offers, graduate employment, time-to-employment, employer engagement, satisfaction levels, career guidance sessions, entrepreneurship activities and collaboration agreements. Università della Calabria and the Selah Foundation for Development report that no formal KPIs are used, although other answers refer to employability indicators. Hadhramout university provides very limited or negative evidence. The Kurdistan Agricultural Engineering Syndicate refers to structured KPIs, but the answer is too general to identify specific indicators.

3.10.2 Feedback collection mechanism

Feedback collection is one of the most commonly reported evaluation practices, although its degree of systematisation differs. Salahaddin University-Erbil, University of Duhok, University of Aden, University of Sulaimani, Garmian University, Università della Calabria and Universidad de Murcia describe mechanisms such as surveys, questionnaires, evaluation forms, interviews, focus groups, direct communication, employer evaluations and post-event feedback. These inputs are used to improve training, internships, career guidance, placement processes, employer relations and service design. Hadhramout university and the Selah Foundation for Development collect feedback more informally, mainly through departments, faculty contacts, academic advising or occasional surveys. The Kurdistan Agricultural Engineering Syndicate refers to a structured and continuous feedback system, but without sufficient operational detail.

3.10.3 Measurement of employability outcomes

Employability outcomes are generally defined in relation to graduates' transition into employment, further study or entrepreneurship, but the level of measurement is uneven. Salahaddin University-Erbil, University of Duhok, University of Aden, University of Sulaimani, Garmian University, Università della Calabria and Universidad de Murcia identify concrete indicators such as employment status, employment rates, time-to-employment, job relevance to the field of study, internship-to-employment conversion, employer satisfaction, job-degree coherence, contract stability or graduate follow-up studies. Hadhramout

university and the Selah Foundation for Development also define employability in relevant terms, but measurement remains limited, informal or non-centralised. The Kurdistan Agricultural Engineering Syndicate provides a broad conceptual definition linked to skills, practical experience and labour market transition, but does not specify measurement procedures.

3.10.4 Internal reporting systems

Internal reporting is more clearly developed in institutions that prepare regular reports for university leadership or relevant units. Salahaddin University-Erbil, University of Duhok, University of Aden, University of Sulaimani, Garmian University and Università della Calabria report CDC results through monthly, quarterly, annual, semesterly or activity-based reports, often including metrics, achievements, trends, areas for improvement and planning information. Universidad de Murcia refers to annual reporting. Hadhramout University, the Selah Foundation for Development and the Kurdistan Agricultural Engineering Syndicate mention a structured internal reporting system, but without assessing its frequency or content.

3.10.5 Evaluation methodologies

Evaluation practices are most clearly developed where institutions assess specific services separately. Salahaddin University-Erbil, University of Duhok, University of Aden, University of Sulaimani, Garmian University, Università della Calabria and Universidad de Murcia mention evaluation methods for workshops, training sessions, internships, career guidance, job fairs, employer events, entrepreneurship activities and placement services. These evaluations use tools such as satisfaction surveys, participation data, employer feedback, student performance reports, outcome tracking, follow-up processes, post-event evaluations and internal reviews. Hadhramout University shows weaker or informal evaluation practices, with limited standardization or no evidence for some services, while the Kurdistan Agricultural Engineering Syndicate and the Selah Foundation for Development generally refer to structured evaluation practices without specifying methods.

3.11 Benchmarking Analysis

3.11.1 Comparative analysis across institutions

Institution	CDC structure	Employment observatory	Guidance services	Employer engagement	Internships	Placement	Entrepreneurship	Impact measurement
Salahaddin University-Erbil	Structured CDC model with central coordination and links with program coordinators.	Observatory-type functions linked to graduate tracking and labour market information.	Structured guidance, including counselling, skills identification, career planning and employability preparation.	Active employer engagement through job fairs, partnerships, guest lectures and employer contacts.	Field-specific internships, negotiated with employers and formalized through official arrangements or MoUs.	Developed placement support, including vacancy dissemination, applicant support and candidate matching.	CDC-led entrepreneurship model, with mentoring, prototyping and external partnerships.	Uses KPIs, employer feedback, participation data, employment outcomes and internal reporting.
University of Duhok	One of the most developed CDC structures, with specialized units and college coordinators.	Graduate tracking and labour market information activities, although not clearly presented as a formal observatory.	Career guidance is present, but some answers provide limited detail on specific assessment methodologies.	Employer relations are developed through partnerships, recruitment activities, internships and labour market connection.	Offers internships in private, public and NGO sectors; sourcing is mentioned, but formalization is less detailed.	Developed vacancy management, including employer networks, vacancy dissemination and applicant support.	Dedicated entrepreneurship unit with training, mentoring, competitions, business planning and incubation support.	Tracks participation, internships, employment-related indicators and feedback for service improvement.
University of Aden	Operational CDC model connected to student support, employability and labour market transition.	Observatory-type function linked to graduate data, employment outcomes and employer needs.	Strong career guidance model, including counselling, self-assessment, career planning, workshops and skills development.	Developed employer engagement through recruitment activities, networking, employer input and labour market collaboration.	Strong internship management model, including employer outreach, MoUs, placement letters, guidelines and follow-up.	Operational placement services, including vacancy sharing, screening, matching and employer recruitment support.	Structured entrepreneurship support, including training, mentoring, competitions, startup support and external partnerships.	Uses indicators such as placement outcomes, employer satisfaction, feedback and internal reporting.
Kurdistan Agricultural Engineering Syndicate	Not a university CDC, but provides professional support linked to training, employability and sectoral labour market needs.	No formal employment observatory but has access to sector-specific labour market information.	Provides sectoral career guidance, practical exposure and labour market advice.	Employer engagement is linked to the agricultural engineering sector and professional partnerships.	Supports sector-specific internships and practical training, although operational details are limited.	Provides structured job-offer and recruitment support, but with limited detail on mechanisms.	Supports entrepreneurship in the agricultural sector, but descriptions are general.	Refers to KPIs and structured feedback, although specific indicators are not clearly detailed.

University of Sulaimani	Operational CDC-related model with career guidance, training, employer coordination and event organization.	Observatory-type function related to graduate tracking and labour market information.	Provides advising, career assessments, workshops, goal setting and application support.	Employer engagement through job fairs, internships, company contacts and partnership-building.	Operational internship model, including short-term and longer placements, employer communication and agreements.	Provides vacancy sharing and applicant support, but the model is simpler than the strongest cases.	Entrepreneurship support is developing, with workshops, seminars and planned future structures.	Tracks participation, employer engagement, internships, feedback and service improvement.
Hadhramout University	Basic structure with limited detail; mentions units such as training, quality assurance and administration.	Mentions monitoring and follow-up but provides limited detail on an employment observatory.	Evidence is limited; guidance is mainly referred to through training courses or general support.	Limited evidence of structured employer engagement.	Provides minimal detail on internships or work-based learning.	Placement evidence is limited; vacancy management is described only in basic terms.	Limited evidence of entrepreneurship structures or activities.	Provides limited evidence, mainly referring to surveys or general reporting.
Selah Foundation for Development	Not a university CDC, but an employability and livelihoods programme, "My Profession (Mehnaty)", under the Development Department, with a dedicated office and team for training, entrepreneurship, incubation and beneficiary follow-up.	No formal employment observatory, but conducts follow-up and monitoring of beneficiaries, training outcomes, employment, self-employment, small business activities and labour market relevance.	Provides vocational and technical training, entrepreneurship training, practical learning, mentoring, awareness sessions, follow-up support and, in some cases, professional kits or small business support.	Employer and partner engagement is based on local businesses, trainers, community actors, NGOs, private sector actors and development partners, maintained through field engagement and continuous coordination.	Offers practical learning, vocational training and field-based experience in areas such as technical trades, renewable energy, agriculture, media, production and small business activities; placements are sourced through local networks and partner coordination.	Does not operate as a formal job placement office, but shares opportunities through partners, community contacts, WhatsApp, phone communication, social media and direct follow-up, with practical matching based on training, skills and interests.	Strong entrepreneurship and self-employment focus through entrepreneurship training, business incubation, mentoring, small business support, income-generating activities and, in some cases, small-scale financing or professional tools through the Mehnaty Fund.	Tracks beneficiaries trained, participation of women and vulnerable groups, training completion, employment, self-employment, income-generating activities, entrepreneurship engagement, beneficiary follow-up, feedback and internal/project reporting.
Garmian University	Smaller but operational CDC structure, with staff and project-based groups.	Observatory-type functions linked to graduate tracking, employer needs and labour market trends.	Developed guidance services, including assessment tools, counselling, reflection, goal setting and action planning.	Strong employer engagement through job fairs, company contacts, workplace visits, partnerships and recruitment activities.	Strong internship model, including mandatory and voluntary placements, employer negotiation and formal agreements.	Developed vacancy management and candidate matching, including CVs, skills, eligibility and job requirements.	Relevant entrepreneurship practices, including workshops, mentoring, competitions, idea development and external collaboration.	Uses indicators, feedback, follow-up, employment outcomes and internal reporting practices.
Università della Calabria	Diversified model involving academic, technical-administrative and specialized service functions.	Employment monitoring is mainly managed at national level rather than directly by the university.	Provides career counselling, skills assessment and labour market information, especially for transition to work.	Strong employer engagement through recruitment days, company presentations, internships, thesis projects and innovation collabouration.	Formal internship model with curricular and extracurricular internships, official agreements and learning contracts.	Does not directly manage job offers but supports recruitment through career events and employer interaction.	Structured entrepreneurship support through innovation, technology transfer, startup support, incubators and competitions.	Uses feedback and employability indicators, although formal KPI use is not clearly established at university level.
Universidad de Murcia	Diversified employability structure, including guidance, internships, placement, employer relations and entrepreneurship support.	Clear observatory-type functions linked to graduate tracking, employability analysis and labour market information.	Developed guidance services with counselling, self-assessment, competency tools, workshops and personalized support.	Strong employer engagement through company relations, job fairs, visits, recruitment activities and collaboration agreements.	Formal internship model with collabouration agreements, learning objectives, tutors and institutional documentation.	Developed vacancy management through job offers, candidate matching, pre-selection and employer support.	Structured entrepreneurship support through UMUemprende, training, mentoring, business advice and ecosystem collabouration.	Uses annual reporting, satisfaction surveys, participation indicators, employability outcomes and feedback mechanisms.

Table. 5: Comparative analysis across institutions

3.12 Common strengths

- Shared recognition of employability as a strategic university responsibility
- Strong conceptual understanding of the CDC as a bridge between education and labour market needs.
- Existing relationships with employers, NGOs, public bodies and professional organisations.
- Use of job fairs, workshops, internships and training as practical employability tools.
- Awareness of the importance of graduate tracking, employer feedback and labour market information.

3.13 Common weaknesses

- Uneven formalisation of CDCs and related services
- Fragmented or informal data collection on graduates, employers and labour market trends.
- Lack of common KPIs and comparable impact measurement systems.
- Dependence on individual contacts or temporary projects rather than stable institutional systems.
- Limited structured candidate matching, placement follow-up and internship quality assurance in several institutions.

3.14 Emerging trends

- Expansion of digital communication through websites, email, social media, WhatsApp and online platforms.
- Growing interest in evidence-based employability strategies and employment observatories.
- Increasing emphasis on employer partnerships, internships and job fairs.
- Recognition of entrepreneurship as part of the employability ecosystem.
- Gradual movement from isolated activities towards more structured CDC governance and reporting.

3.15 Innovative practices identified

- Decentralized college-level program coordinators connected to a central CDC.
- Partner-based funding models involving NGOs, foundations, companies and public institutions.
- Use of employer databases and recurrent employer collaboration as indicators of relationship quality.
- Integration of CDC functions with quality assurance and curriculum improvement processes.
- Linking entrepreneurship support with employability, mentoring and external stakeholder networks.

3.16 Good practices Catalogue

3.16.1 Centralised CDC with decentralised faculty coordination

Element	Description
Context	Large universities need both institutional visibility and faculty-level reach.
Description	A central CDC located under the presidency, rectorate or employment vice-rectorate coordinates strategy, while college or program coordinators connect services to departments.
Resources required	Director/coordinator, faculty focal points, communication channels, reporting template, basic database.
Impact	Improves service reach, coordination and institutional legitimacy.
Transferability	Highly transferable to Kurdistan and Yemen, especially where central CDCs exist but need stronger faculty integration.

Table 6: Centralised CDC with decentralised faculty coordination

3.16.2 Graduate tracking and employment observatory function

Element	Description
Context	Reliable employability data are necessary for curriculum improvement and strategic decisions.
Description	A CDC or observatory collects graduate employment data, employer needs, internship outcomes and labour market trends through surveys, alumni follow-up and employer feedback.
Resources required	Standard questionnaire, alumni database, staff for analysis, reporting calendar, data protection protocol.
Impact	Supports evidence-based decisions, identifies skills gaps and improves accountability.
Transferability	Transferable as a phased model: start with basic graduate surveys and progress towards a formal observatory.

Table 7: Graduate tracking and employment observatory function

3.16.3 Structured employer engagement and vacancy management

Element	Description
Context	Employer relations are central to internships, job offers and graduate employment.
Description	The CDC maintains an employer database, receives and verifies vacancies, disseminates them through official channels, supports applicants and follows up on outcomes.
Resources required	Employer database, vacancy submission form, communication channels, staff for matching and follow-up.
Impact	Increases transparency, improves matching and strengthens employer trust.
Transferability	Highly transferable but requires minimum staff capacity and clear internal procedures.

Table 8: Structured employer engagement and vacancy management

3.17 Recommendations for MOVE

3.17.1 Recommendations for Career Development Centres

- Adopt a formal CDC mandate approved by university leadership, defining mission, governance, services, target groups and reporting responsibilities.
- Locate CDCs at a sufficiently central institutional level to coordinate across faculties, while appointing faculty or program-level focal points.
- Define minimum staffing profiles: CDC director, employer relations officer, career guidance officer, internship/placement officer and data/reporting focal point.
- Create annual CDC action plans linked to measurable objectives and institutional employability priorities.

3.17.2 Recommendations for employability services

- Develop a common portfolio of core services: career counseling, CV and interview support, employability workshops, career planning, internship support and job-searching guidance.
- Introduce structured skills assessment tools to help students identify interests, values, competencies and development needs.
- Provide differentiated guidance for first-year students, final-year students, graduates, vulnerable groups and postgraduate students.
- Use follow-up records to move from one-off advising to continuous career development support.

3.17.3 Recommendations for university-business cooperation

- Build or update central employer databases including sector, contact person, history of collaboration, vacancies, internships and feedback.
- Formalize partnerships through MoUs or collaboration agreements where possible.
- Create a clear value proposition for employers: access to talent, recruitment support, visibility, internships and collaboration with academic programs.
- Measure the quality of employer relationships through repeat collaboration, satisfaction, internship quality and hiring outcomes.

3.17.4 Recommendations for entrepreneurship support

- Integrate entrepreneurship into the CDC ecosystem where dedicated units do not yet exist.
- Design a simple pathway from idea generation to mentoring, business planning, incubation and external support.
- Use external partners, entrepreneurs, NGOs, companies and public institutions as mentors and challenge providers.
- Track entrepreneurship outputs such as participants, ideas developed, prototypes, startups created, mentoring hours and partner involvement.

3.17.5 Recommendations for impact measurement

- Define a shared minimum KPI framework for CDCs and employment services.
- Collect comparable data on graduate employment, internships, guidance sessions, job offers, employer prtnerships, satisfaction and service outcomes.
- Establish annual internal reporting to university leadership and faculties.
- Use evaluation results to revise services, improve curricula and strengthen labour market alignment.

Chapter 4

Students' and Graduates' Employability

4. Benchmarking of Good Practices: Students and Graduates Employability

4.1 Purpose and Scope of Benchmarking

The benchmarking exercise was designed to identify, analyse and compare employability practices implemented by the MOVE partner institutions to support the development of more effective CDCs and to strengthen university-labour market cooperation. Rather than establishing rankings among institutions, the benchmarking process seeks to identify common strengths, challenges, and transferable practices that can help improve graduate employability across the consortium.

The analysis adopts a comprehensive perspective on employability by considering both current students' experiences and graduates' employment outcomes. Students provide evidence of how academic programmes, employability services and university initiatives contribute to their preparation for the labour market, while graduates offer a retrospective assessment of the effectiveness of these experiences after entering professional life. The combination of these perspectives enables an examination of employability as a continuous process that extends from higher education to labour market integration.

Benchmarking focuses on several complementary dimensions, including competence development, access to employability services, participation in internships and work-based learning, university-industry collaboration, career support initiatives, and the perceived contribution of these activities to employability and professional development. Particular attention is given to identifying practices that can be transferred or adapted across partner institutions operating in different national and institutional contexts.

This chapter provides the analytical framework for interpreting the evidence presented in the following sections. The benchmarking results are organised into two complementary analyses: one based on students' perceptions of employability preparation and another focused on graduates' labour market experiences and employment outcomes. Together, these analyses offer an evidence-based assessment of current employability practices and support the formulation of recommendations to strengthen Career Development Centres and enhance employability strategies within the MOVE consortium.

4.2 Sources and Survey Tools Used

The benchmarking presented in this report is based on primary data collected through two complementary online surveys designed for the MOVE project. Both questionnaires were developed by the University of Murcia in collaboration with the project partners and distributed across the participating universities using a common data collection protocol. The surveys constitute the main source of evidence for identifying employability practices, common challenges, and opportunities for improvement across the consortium.

Two distinct target populations were considered to provide a comprehensive understanding of employability throughout the higher education journey. The first questionnaire was administered to current students enrolled in Agricultural Engineering, Environmental Sciences, Environmental Engineering, Food Science, and related programmes. It explored students' perceptions of competence development, access to CDC services, participation in employability activities, internship experiences, university-industry collaboration, perceived employability, and future training needs. A total of 273 students participated in the survey.

The second questionnaire targeted university graduates from the same academic disciplines. It examined employability from a post-graduation perspective, focusing on the use and perceived value of employability services, internship quality, university-industry collaboration, competence development, labour market outcomes, and graduates' recommendations for improving university support. The graduate survey received 63 valid responses.

Both questionnaires combined closed- and open-ended questions. Closed questions included Likert-scale, dichotomous, and multiple-choice items, enabling the collection of quantitative evidence on the main dimensions of employability. Open-ended questions complemented the statistical information by gathering participants' views on the most valuable employability practices, existing shortcomings, and future priorities. This mixed-methods approach provides a richer understanding of employability and facilitates the identification of transferable good practices across institutions.

Both surveys used a common methodological approach, with voluntary and anonymous participation via an online questionnaire distributed by the partner universities. The instruments combined closed-ended questions, including Likert-scale, dichotomous, and multiple-choice items, with open-ended questions to capture participants' experiences, opinions, and recommendations. This mixed-methods design enabled the integration of quantitative evidence with qualitative insights, providing a broader understanding of employability practices and their perceived effectiveness.

Quantitative data were analysed using descriptive statistics, including frequencies, percentages, mean scores, and graphical representations, to identify key patterns across respondents. Where appropriate, the analysis also examined differences by gender and academic field. Qualitative responses were analysed using thematic analysis, grouping similar comments into recurring themes and categories to identify common strengths, challenges, and recommendations. Rather than ranking institutions, the benchmarking adopted a comparative approach to identify transferable good practices that could support the development of Career Development Centres and strengthen employability strategies across the MOVE consortium.

The two questionnaires share a common conceptual framework and analyse comparable dimensions, including competence development, employability services, internships, university-industry collaboration, career readiness, and labour market integration. This parallel design enables comparison of students' perceptions before entering the labour

market with graduates' experiences after completing their transition into employment, providing a comprehensive evidence base for benchmarking employability practices across the partner institutions.

4.3 Good Practices in Student Employability

4.3.1 Respondents' profile

A total of 273 students from universities participating in the MOVE project completed the questionnaire. The sample offers broad representation of students enrolled in programs related to the agricultural and environmental sectors, enabling an assessment of their perceptions of employability, competence development, career preparation, and university support services.

Figure 1 shows the distribution of respondents by degree programme. Nearly half of the students (46.7%) are enrolled in Agricultural Engineering, making it the largest group in the sample. Food Science and Technology accounts for 22.8% of respondents, followed by Environmental Sciences/Engineering (20.6%). The remaining 7.7% are enrolled in other programs related to the agricultural, environmental, and life sciences.

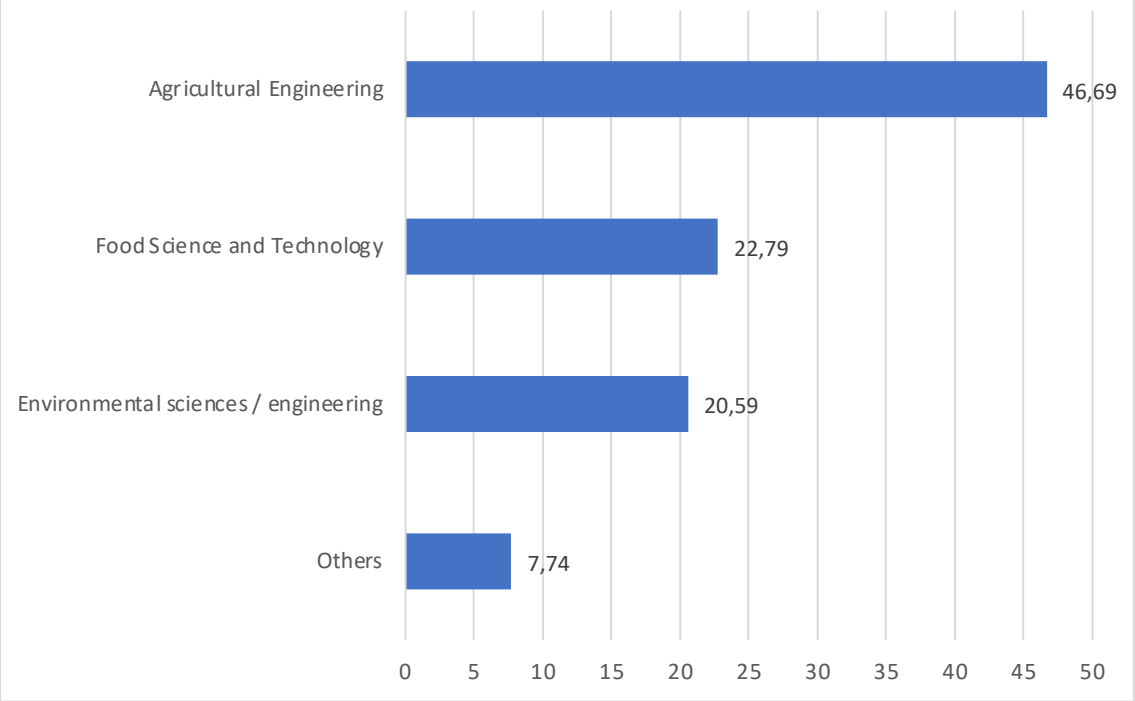


Fig. 1: Degree Programme

Regarding gender, the sample is predominantly female. Female students account for 64.7% of respondents, while male students represent 35.3% (Figure 2). Although the distribution is not balanced, it reflects the composition of the participating sample and allows exploration of potential gender differences in perceptions of employability and training needs. In addition, first-year students make up the largest share of the sample (41.9%), followed by fourth-year (27.2%) and third-year students (26.5%). By contrast, second-year students are underrepresented, accounting for only 3.3% of respondents. Overall, the sample includes students at different stages of their academic journey, offering perspectives from those who have recently entered higher education and those approaching graduation.

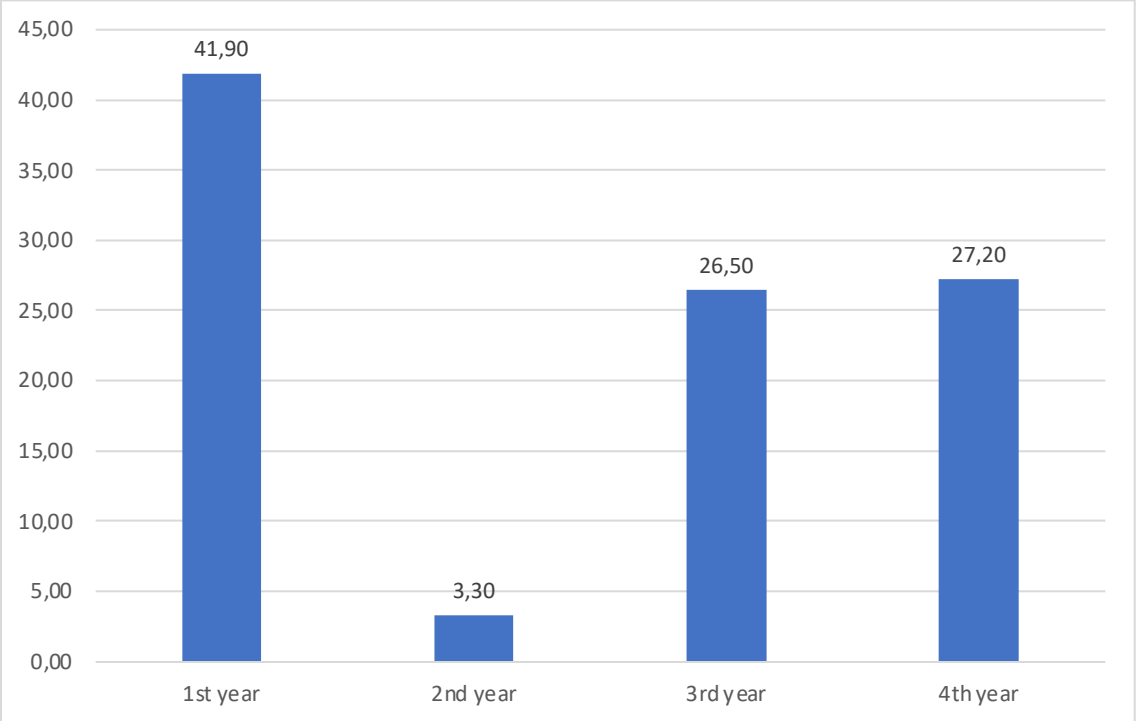


Fig. 2: Current year of study

4.3.2 Academic preparation and competence development

4.3.2.1 Perceived preparation for professional work

Students were asked to assess how well their university education has prepared them for their future careers. The findings indicate a generally positive perception of academic preparation. The largest share of respondents (42.4%) report that their studies have prepared them primarily for professional work, followed by those who consider themselves partially (27.7%) or fully prepared (26.8%). Only a very small minority (3.3%) reports feeling insufficiently prepared. These findings suggest that students generally perceive their

academic programmes as providing an adequate foundation for entering the labour market, although there remain opportunities to further strengthen employability-oriented learning experiences.

A somewhat different pattern emerges when the results are analysed by gender. Female students are more likely to report feeling mostly prepared (44.8% versus 37.9%), whereas male students are more likely to report feeling totally prepared (31.6% versus 25.3%). By contrast, the proportions reporting being partially prepared are very similar (26.4% for females and 27.4% for males), as are the percentages of students who consider their preparation insufficient (3.4% and 3.2%, respectively). This shows that, although general perceptions are positive across both groups, male students tend to express greater confidence in being fully prepared for professional practice, whereas female students more often perceive themselves as well prepared but with room for further development.

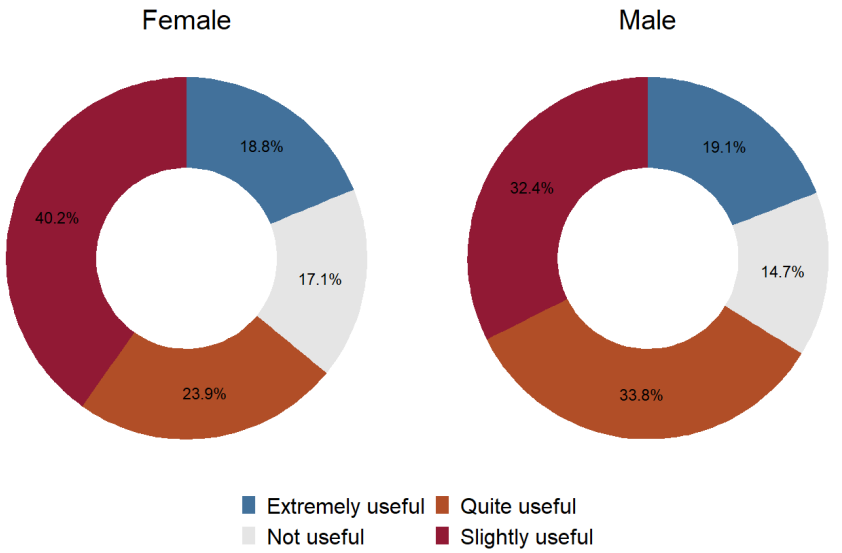


Fig. 3: Perceived preparation for professional work

4.3.2.2 Transversal competences

Students were asked to self-assess their level of development across a range of transversal or soft skills using a five-point Likert scale. The results indicate moderate to relatively high levels of confidence across all competencies, with mean scores ranging from 3.0 to 3.3. Teamwork is the highest-rated competency (3.3), closely followed by adaptability to lifelong learning (3.3), communication and leadership (3.2), problem solving (3.2), and time management (3.2). Oral and written communication, critical thinking, and proactivity each have an average score of 3.1. Digital and technological skills receive the lowest evaluation (3.0), suggesting that students perceive this competency as the area in which they feel least prepared. The findings suggest that students feel reasonably confident in their transversal competencies, although further efforts to strengthen digital capabilities could enhance their employability.

When results are examined by gender, several differences become apparent. Male students consistently report higher confidence across almost all transversal competencies. The largest differences are observed in teamwork (3.7 for males versus 3.1 for females), problem-solving (3.5 versus 3.0), communication and leadership (3.5 versus 3.0), adaptability to lifelong learning (3.5 versus 3.1), and time management (3.3 versus 3.1). Similar patterns are found for critical thinking (3.2 versus 3.0), proactivity (3.2 versus 3.0), oral and written communication (3.3 versus 3.0), and digital and technological skills (3.1 versus 2.9).

Although the differences are generally modest, they consistently point in the same direction, indicating that male students tend to perceive themselves as more competent across the full range of transversal skills. This evidence may reflect differences in self-perception rather than actual competence and should therefore be interpreted with caution.

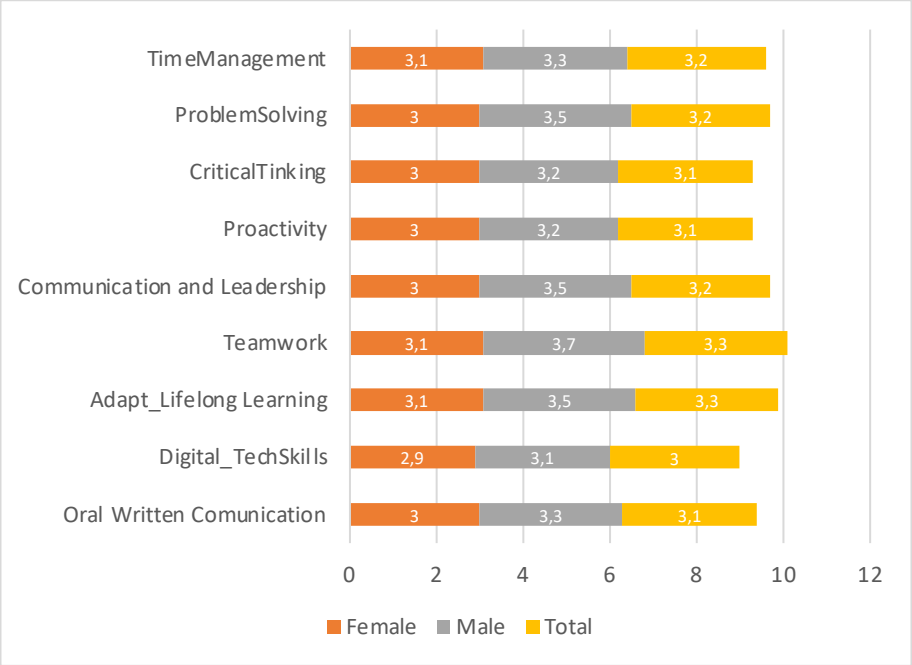


Fig. 4: Level of soft skills

4.3.2.3 Technical competences

Students were also asked to assess their competence in a range of technical skills directly related to agriculture and the environment. The results indicate moderate confidence, with average scores ranging from 2.5 to 2.9 on a five-point Likert scale (Figure %).

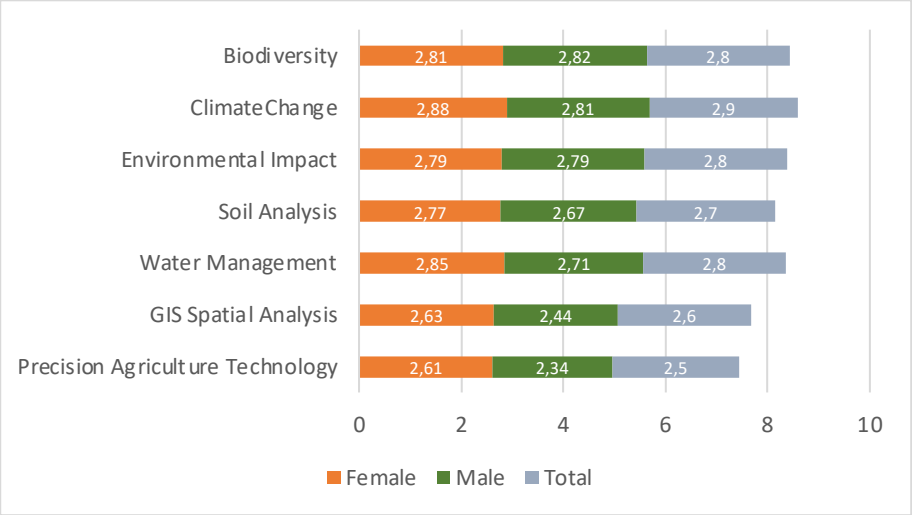


Fig. 5: Technical field competences

The highest-rated competency is climate change (2.9), followed by biodiversity (2.8), environmental impact assessment (2.8), and water management (2.8). Slightly lower scores are recorded for soil analysis (2.7) and GIS and spatial analysis (2.6), with precision agriculture technology receiving the lowest rating (2.5). These findings suggest that students feel reasonably prepared in traditional environmental and natural resource management topics, whereas greater emphasis may be needed on digital and technology-driven competencies that are increasingly important in the agricultural and environmental sectors.

Gender differences show a different pattern from that observed for transversal competencies. Female students report equal or higher levels of confidence than male students across almost all technical areas. The largest differences are found in precision agriculture technology (2.61 for females versus 2.34 for males), GIS and spatial analysis (2.63 versus 2.44), water management (2.85 versus 2.71), and soil analysis (2.77 versus 2.67). Perceptions are virtually identical for environmental impact assessment (2.79 for both groups) and biodiversity (2.81 versus 2.82). Climate change is the only competency in which the difference is negligible and slightly favours female students (2.88 versus 2.81). Although the differences are relatively small, female students consistently report slightly higher levels of confidence in technical field competencies than their male counterparts.

Interestingly, this pattern contrasts with the results for transversal competencies, where male students generally reported higher self-assessments. This suggests that perceived competence may vary by skill type and underscores the importance of analysing both technical and transversal competencies separately.

4.3.2.4 Professional Competences

Students were also asked to assess a set of professional competencies particularly relevant to successful integration into the labour market. The results indicate generally positive confidence, with mean scores ranging from 3.0 to 3.4 on a five-point Likert scale. Teamwork receives the highest overall rating (3.4), followed by leadership (3.3) and sustainability (3.3).

Digital technical tools, communication with technical staff, and problem-solving in real-world contexts each receive an average score of 3.1, while data analysis receives the lowest evaluation (3.0). These findings suggest that students perceive themselves as reasonably well prepared in key professional competencies, although analytical and data-related skills remain areas for further development.

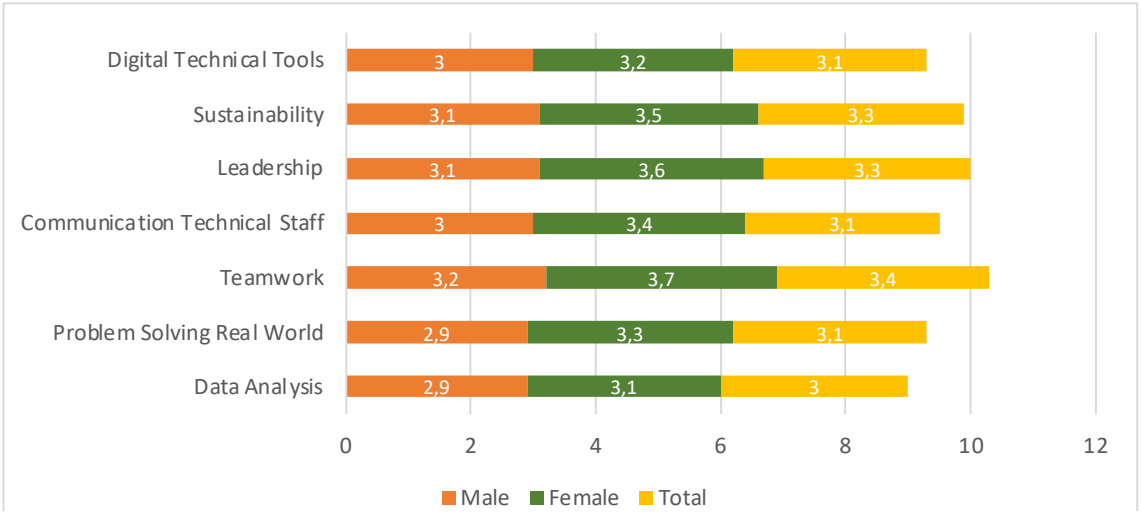


Fig. 6: Profesional Competences

The gender analysis reveals a consistent pattern across all professional competencies. Female students report higher confidence than male students in every competency assessed. The largest differences appear in teamwork (3.7 for females versus 3.2 for males), leadership (3.6 versus 3.1), sustainability (3.5 versus 3.1), communication with technical staff (3.4 versus 3.0), and problem solving in real-world contexts (3.3 versus 2.9). Smaller but still consistent differences are also found in digital technical tools (3.2 versus 3.0) and data analysis (3.1 versus 2.9). Although these differences are generally modest, they consistently indicate higher self-assessments among female students across all professional competencies.

Taken together, the three competence domains reveal distinct gender patterns. While male students tend to report higher confidence in transversal competencies, female students consistently rate themselves more positively in both technical field and professional competencies. These contrasting patterns indicate that students' self-perceptions are affected more by the specific type of competence being evaluated than by a general sense of confidence.

4.3.3 Access to employability resources

4.3.3.1 Use of career services

Students were asked to assess their access to and interest in various employability resources and services provided by their universities, using a five-point Likert scale.
The results indicate moderate agreement, with average scores ranging from 3.0 to 3.2. Professional skills workshops received the highest evaluation (3.2), followed by job fairs, internship portals, and information on job opportunities (all 3.1). Career guidance services and entrepreneurship programmes both averaged 3.0. The evidence suggests that students perceive employability resources as reasonably accessible and relevant, though additional efforts could increase their visibility, accessibility, and perceived value within the university environment.

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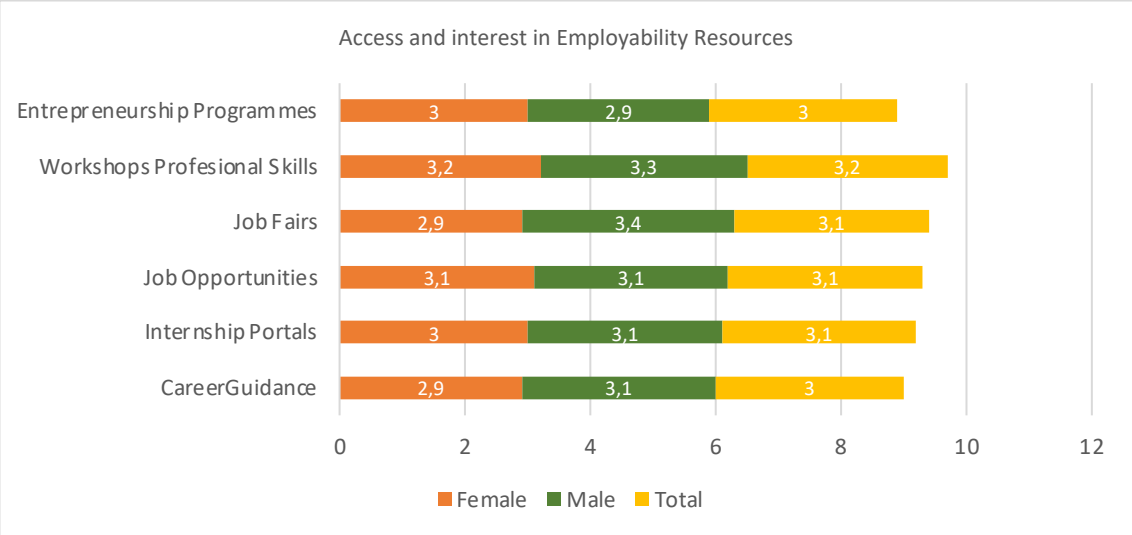


Fig. 7: Access and interest in Employability Resources

The gender analysis shows generally similar perceptions, though male students report slightly higher evaluations of most employability resources. The largest gender difference appears in job fairs (3.4 for males versus 2.9 for females), followed by career guidance services (3.1 versus 2.9) and internship portals (3.1 versus 3.0). Male students also rate professional skills workshops slightly higher (3.3 versus 3.2). By contrast, female students rate entrepreneurship programmes marginally higher than male students (3.0 versus 2.9), while perceptions of access to information on job opportunities are identical for both groups (3.1). Gender differences are relatively small, indicating that employability resources are perceived similarly by female and male students.

4.3.3.2 Interest in employability activities

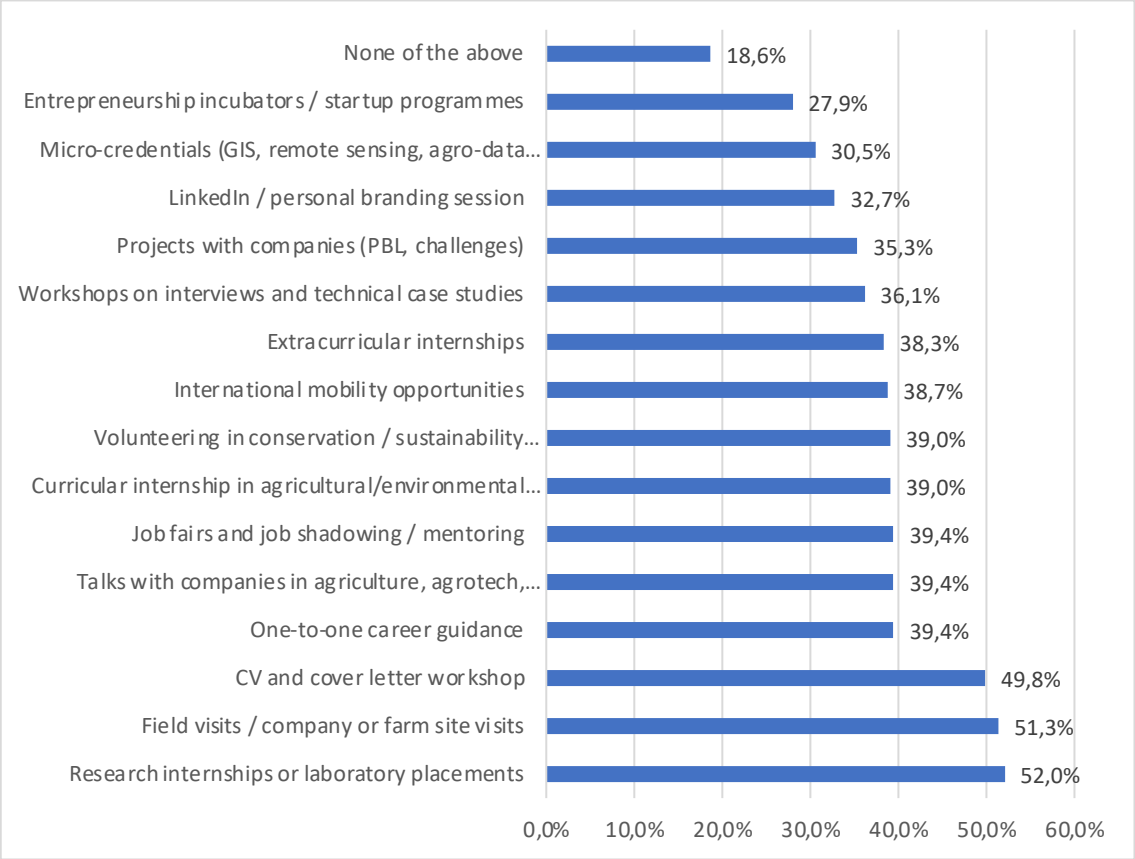
Participation in employability activities is an important indicator of students' engagement with career development opportunities during their university studies. CDCs and related university services offer a broad portfolio of activities.
Examining students' participation in and interest in these activities provides valuable evidence of the types of support they consider most relevant to their academic and professional development.

Students were asked to indicate the employability activities or services they had participated in or were interested in accessing. Because respondents could select multiple activities, the results should be interpreted as the proportion of students who identified each activity rather than as mutually exclusive categories. Consequently, percentages do not sum to 100%, as each respondent could choose more than one option. This approach provides a broader picture of students' employability interests and allows different activities to be interpreted independently, based on the demand they generate.

The results show a strong preference for practical, experience-based employability activities (Figure 8). The most frequently selected options are research internships or laboratory placements (52.0%) and field visits or company/farm site visits (51.3%), indicating that students place particular value on opportunities that connect academic learning with real-world professional environments.

A second highly relevant area concerns preparation for direct selection processes. Almost half of respondents selected CV and cover letter workshops (49.8%), while around four out of ten expressed interest in one-to-one career guidance (39.4%), job fairs and job shadowing or mentoring (39.4%), and talks with companies in agriculture, agrotech, water, waste, or conservation (39.4%). These findings suggest that students value both individualised career support and direct interaction with employers.

Internship-related options also attract substantial attention. Curricular internships (39.0%) and extracurricular internships (38.3%) were selected by a significant proportion of respondents, confirming the importance of structured work-based learning in students' employability expectations.



1 Percentages represent the proportion of respondents in each subgroup who selected each activity. Because multiple responses were allowed, the percentages do not sum to 100%.

Fig.8: Employability activities and services used or of interes

Other relevant activities include international mobility opportunities (38.7%), volunteering on conservation or sustainability projects (39.0%), interview and technical case-study workshops (36.1%), and company-based projects using PBL or challenges (35.3%). These responses indicate a broad understanding of employability, combining technical learning, practical experience, professional exposure, and international or civic engagement. More specialised services, such as micro-credentials in GIS, remote sensing, agro-data analytics, EIA, and sustainability tools (30.5%), and entrepreneurship incubators or start-up programmes (27.9%), were selected by smaller but still relevant groups of students. This suggests interest in advanced and specialised employability pathways, particularly those linked to digital skills, sustainability, and entrepreneurship.

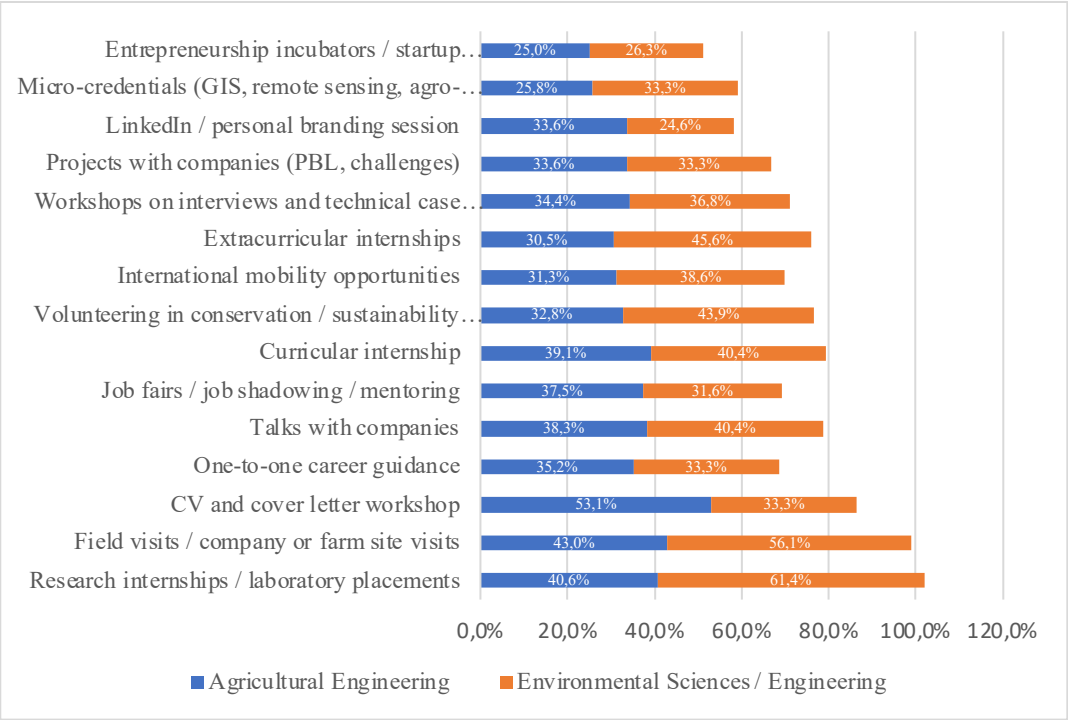
Finally, 18.6% selected "None of the above", suggesting that a minority of students either had not used these services, were not interested, or may not have had sufficient access or awareness. This result highlights the need to strengthen the communication, visibility, and accessibility of employability services across participating universities.

The findings indicate that students prioritise employability activities that offer direct exposure to professional practice, practical skills development, and contact with employers.

This reinforces the importance of strengthening internships, laboratory placements, field visits, company engagement, and individualised career guidance within CDCs.

Although the general pattern is consistent across respondents, some differences emerge by academic background and gender (Figures 9 and 10).

Students enrolled in environmental sciences and environmental engineering show greater interest in research internships, laboratory placements, field visits, extracurricular internships, international mobility opportunities, volunteer activities, and micro-credentials, reflecting a stronger orientation towards research, internationalisation, and specialised technical training. In contrast, students in Agricultural Engineering place relatively greater emphasis on career preparation activities, particularly CV and cover letter workshops, job fairs, mentoring initiatives, and personal branding.



1 Percentages represent the proportion of respondents in each subgroup who selected each activity. Because multiple responses were allowed, the percentages do not sum to 100%.

Fig.9: Participation in employability activities

Gender differences are somewhat more pronounced. Male students report higher interest in most employability activities, particularly career guidance, internships, interview preparation, micro-credentials, entrepreneurship programmes, and LinkedIn training, whereas female students show relatively greater interest in research internships and collaborative projects with companies. Despite these differences, practical learning experiences and direct engagement with employers remain the top priorities across all groups.

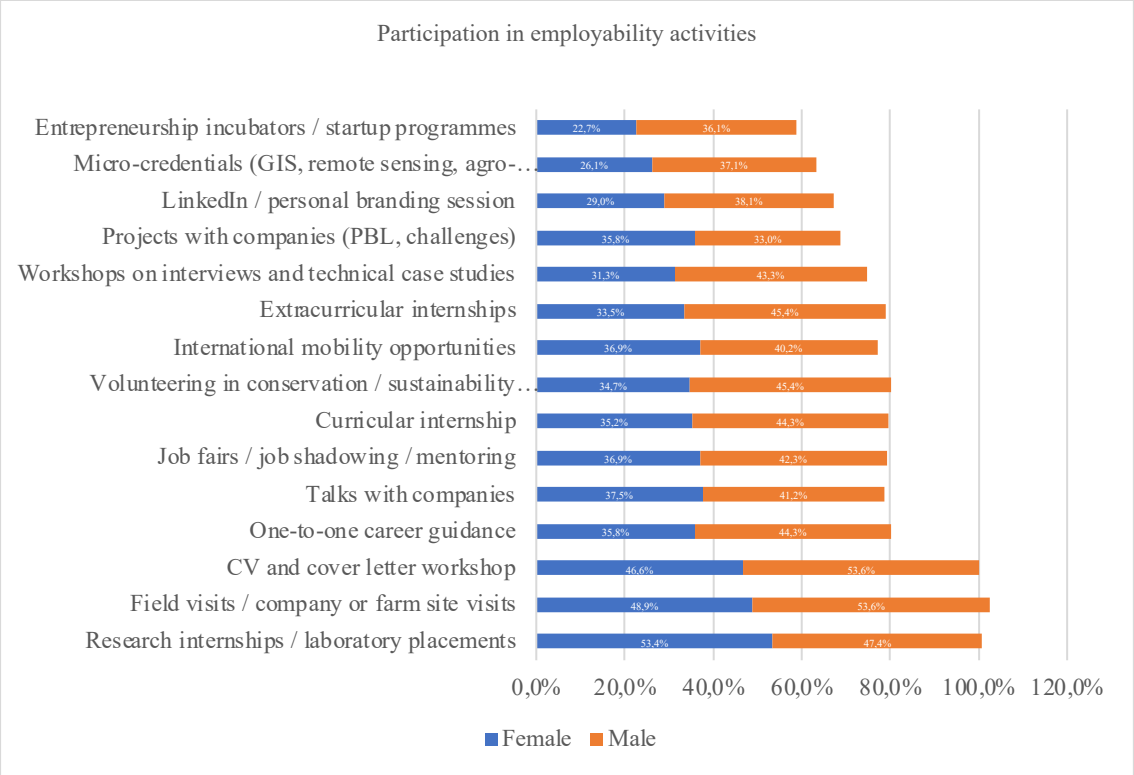


Fig.10: Participation in employability activities

4.3.4 Internships and professional experience

4.3.4.1 Participation in internships

A slight majority of students (51.8%) reported having completed or currently undertaking a field-related internship, while 4.6% reported not having participated in such an experience. Although internship participation is relatively widespread, nearly half of respondents had not yet engaged in work-based learning in their field of study.

This highlights the need to expand internship opportunities and strengthen collaboration between universities and employers to ensure that a larger proportion of students can gain practical professional experience before graduation.

4.3.4.2 Perceived usefulness

Students who had completed or were undertaking a field-related internship were asked to evaluate its usefulness for their employability. The data indicate a positive perception of internships as an important component of students' professional preparation and career development.

The largest share of respondents (36.6%) considered their internship slightly useful, while 29.6% rated it quite useful and 23.2% rated it extremely useful. Taken together, more than half of the students (52.8%) perceived their internship experience as quite or extremely useful for enhancing their employability. Only 10.6% considered their internship not useful.

The analysis demonstrates that field-related internships are generally regarded as a valuable means of developing professional competencies and facilitating the transition from higher education to the labour market. Nevertheless, the predominance of "slightly useful" responses indicates that there is still room to enhance the quality of internship experiences by strengthening supervision, increasing students' responsibilities, improving alignment with academic programmes, and fostering closer collaboration between universities and employers.

4.3.5 Quality of internship experiences

Students who had completed or were undertaking a field-related internship were also asked to evaluate various dimensions of their internship experience on a five-point Likert scale, with 1 indicating strong disagreement and 5 strong agreement (Figure 11).

The questionnaire assessed key aspects of internship quality, including the alignment of assigned tasks with students' field of study, the internship's contribution to competence development, the clarity of learning objectives, supervision and feedback, placement procedures, working conditions, and follow-up mechanisms. The results provide a more comprehensive assessment of students' internship experiences beyond their overall perceived usefulness.

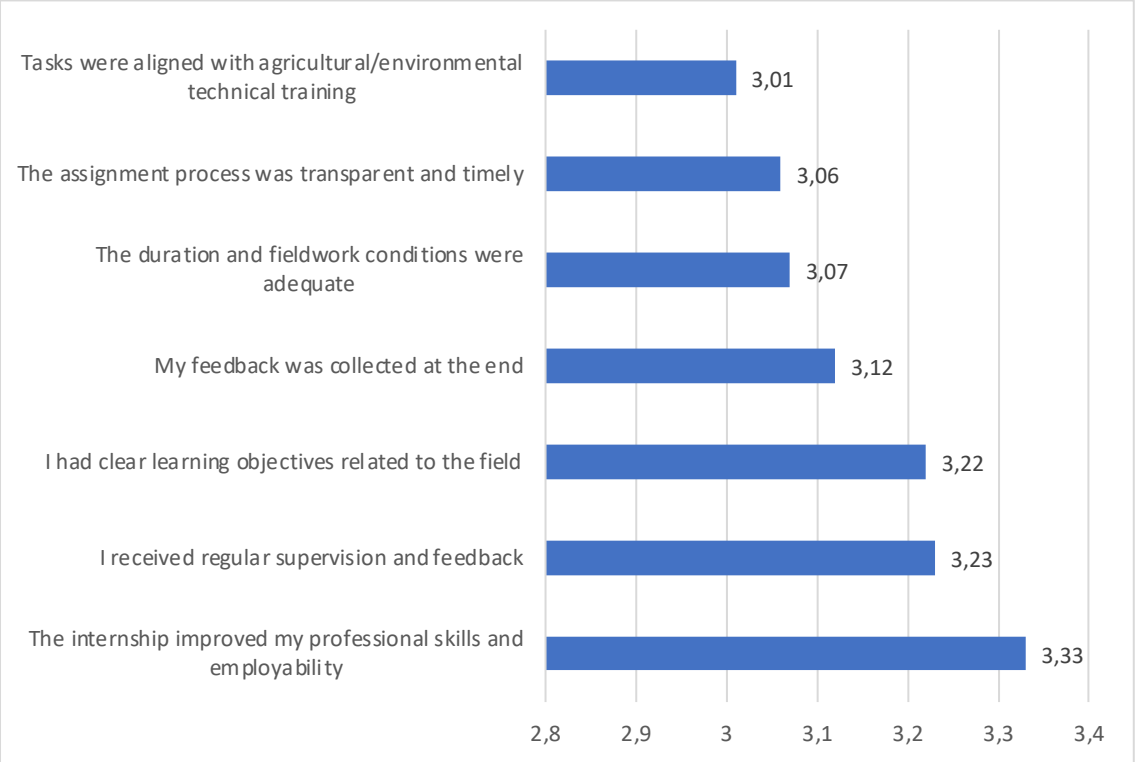


Fig.11: Internship quality dimensions

Overall, students report positive evaluations across all dimensions of the internship experience, with mean scores ranging from 3.01 to 3.33 on a five-point scale. Although no indicator reaches a very high level of satisfaction, all average scores remain above the midpoint of the scale, suggesting that students generally view internships as a valuable component of their academic and professional development.

The highest-rated dimension is the internship's contribution to the development of professional skills and employability (3.33). This pattern indicates that students generally view internships as effective opportunities to strengthen their competencies and improve their preparedness for future employment. Positive evaluations are also observed for supervision and feedback (3.23) and for the presence of clear learning objectives (3.22), indicating that many students considered their internship experience to be appropriately guided and educationally relevant.

Moderately positive evaluations were recorded for the collection of students' feedback at the end of the internship (3.12), the duration and fieldwork conditions (3.07), and the transparency of the placement process (3.06). The lowest-rated dimension is the alignment of internship tasks with students' agricultural or environmental training (3.01). Although this score remains above the midpoint, it suggests there is scope to better align workplace activities with the skills gained through academic programmes.

Collectively, these results indicate that students view internships as a positive component of their professional preparation. However, improving the alignment between internship tasks and academic curricula, and enhancing placement procedures, supervision, and follow-up mechanisms, could further increase the educational value and employability impact of work-based learning experiences.

4.3.6 University–Industry connection

Students were also asked to assess how effectively their academic programmes facilitate engagement with employers and professionals in the agricultural and environmental sectors. Overall, results indicate moderate agreement, with mean scores ranging from 2.7 to 3.1 on a five-point Likert scale (Figure 12). Industry practices received the highest evaluation (3.1), followed by the development of relevant transversal competencies (3.1). Slightly lower scores were observed for the incorporation of real agricultural courses (2.9) and opportunities to interact with practitioners (2.8), while micro-credentials received the lowest rating (2.7). This may reflect that, although students recognise efforts to strengthen university-employer connections, there remains considerable room to enhance collaboration with industry and increase students' exposure to authentic professional environments.

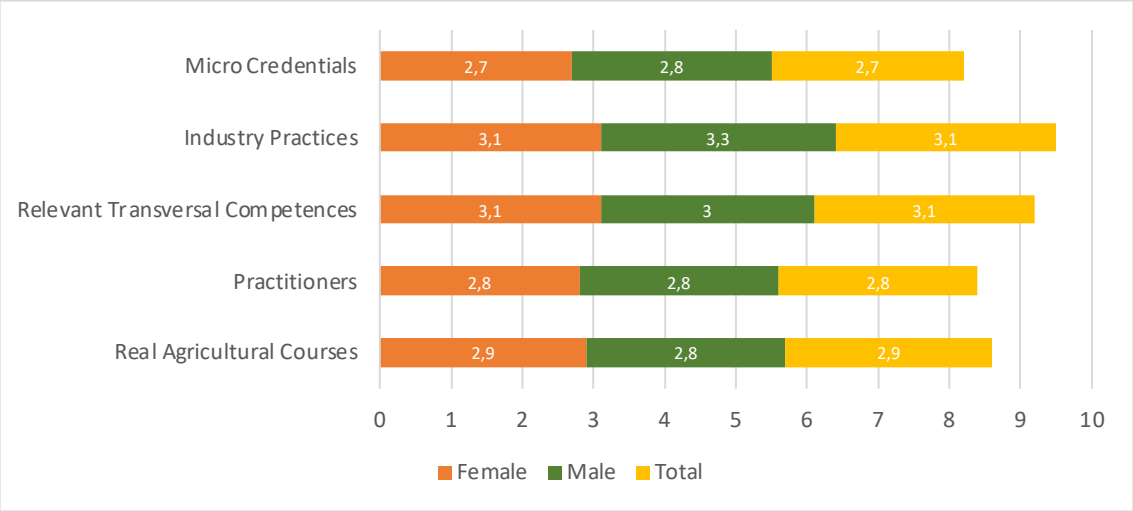


Fig.12: Involvement with Agricultural and Environmental Employers

Gender differences are generally small. Male students report slightly more positive perceptions of industry practices (3.3 versus 3.1 for females) and of the availability of micro-credentials (2.8 versus 2.7). Female students, in contrast, give marginally higher ratings to the integration of real agricultural courses (2.9 versus 2.8) and to the development of relevant transversal competencies (3.1 versus 3.0). Both groups report identical perceptions of opportunities to engage with practitioners (2.8). Overall, the results indicate that female and male students share broadly similar views on the level of interaction between their academic programmes and employers in the agricultural and environmental sectors.

Students were asked whether they were aware of any additional activities, beyond those already included in the questionnaire, that link their academic programmes to the agricultural and environmental sectors. The responses indicate that awareness of such initiatives is generally limited.

The majority of respondents either did not know of any additional activities or stated that no further initiatives were available within their institutions. This was the dominant response across the dataset, suggesting that students either perceive a shortage of complementary employability activities or are not sufficiently informed about those that already exist.

Among students who identified additional initiatives, the most frequently cited activities were field visits, internships, and practical experiences in professional settings. Respondents cited visits to agricultural companies, food-processing facilities, environmental organisations, water treatment plants, and industrial sites, as well as participation in field-based internships and practical placements. Several students also highlighted seminars, exhibitions, and events organised by external organisations such as FAO and local development agencies.

Fewer respondents reported digital and technical activities, such as using GIS, remote sensing, and other specialised software, while others mentioned collaboration with local businesses, nurseries, agricultural enterprises, or community organisations.

The results indicate that additional university-industry activities exist but are relatively fragmented and not widely recognised by students. The predominance of negative responses suggests that improving the visibility, communication, and accessibility of these initiatives may be as important as expanding the range of activities. Strengthening awareness of existing opportunities could therefore be a relatively low-cost strategy to enhance students' engagement with employability initiatives and reinforce links between academic programmes and the agricultural and environmental sectors.

4.3.7 Perceived employability

4.3.7.1 Readiness for employment

Students were asked to evaluate the extent to which their university experience has contributed to different dimensions of their employability (Figure 13). Overall, perceptions are relatively positive, with mean scores ranging from 2.9 to 3.3 on a five-point Likert scale. The highest-rated dimensions are feeling prepared for future employment and having clearer professional goals (both 3.3). Students also perceive that their university experience has improved their employment opportunities (3.0), while the lowest score is for the expansion of professional networks (2.9). Although all dimensions receive positive evaluations, the comparatively lower score for networking suggests that universities could further strengthen students' opportunities to establish connections with employers and professionals before graduation.

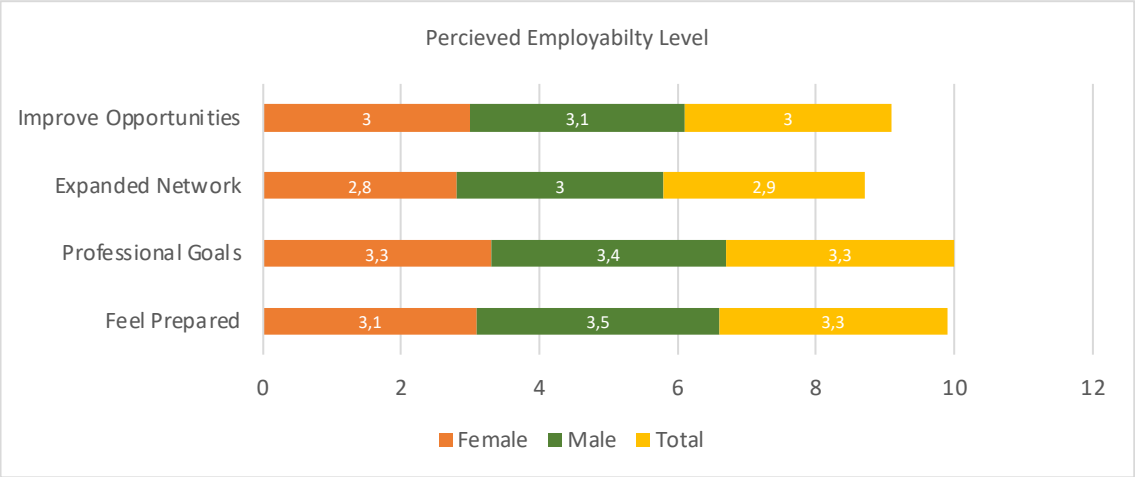


Fig.13: Perceived Employabilty Level

The gender analysis shows a consistent pattern across the four dimensions. Male students report slightly higher agreement than female students on feeling prepared for employment (3.5 versus 3.1), having clearer professional goals (3.4 versus 3.3), expanding their professional network (3.0 versus 2.8), and improving their employment opportunities (3.1 versus 3.0).

Although these differences are modest, they consistently favor male students. Nevertheless, both groups report positive perceptions across all dimensions, indicating that students generally recognize the contribution of their university experience to the development of their employability.

4.3.7.2 Recent job opportunities

Students were asked to indicate the number of job offers or interview opportunities they had received over the previous six months (Figure 14). The findings suggest that direct contact with the labour market remains relatively limited. The majority of respondents (67.1%) reported not receiving any job offers or interview opportunities during this period. Around one in five students (19.1%) reported receiving one or two opportunities, while 8.7% reported receiving three to five. Only a small minority (5.1%) reported receiving more than five job offers or interview invitations. This evidence is consistent with the finding that most respondents are still enrolled in their degree programmes and have not yet entered the labour market full-time.

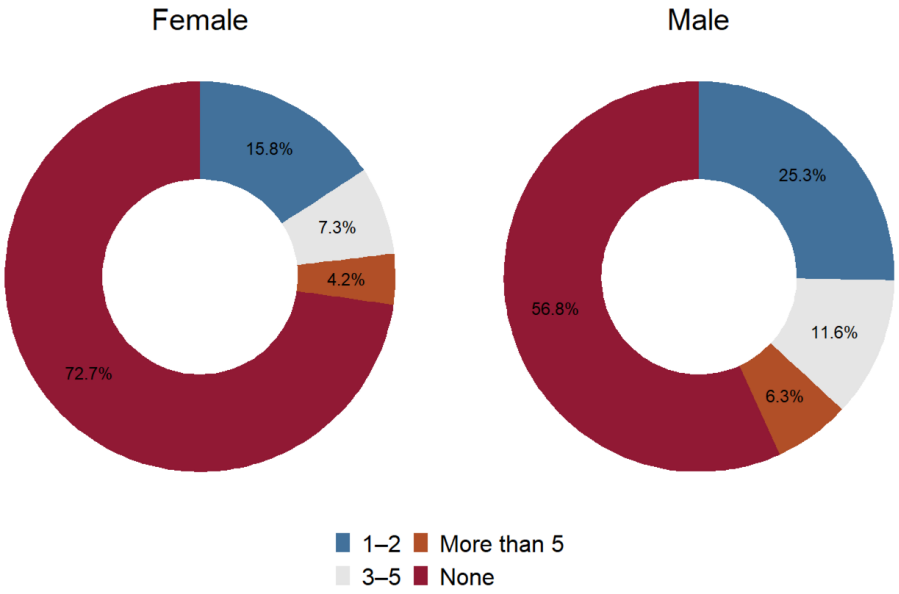


Fig.14: Recent Job Opportunities

Clear gender differences emerge from the analysis. Female students are more likely to report receiving no job offers or interview opportunities (72.7% versus 56.8% for males). In contrast, male students report higher levels of labour market contact. One quarter of male respondents (25.3%) received one or two opportunities, compared with 15.8% of female students. Similarly, 11.6% of males reported receiving between three and five opportunities, compared with 7.3% of females, while the proportion receiving more than five opportunities was slightly higher among males (6.3% versus 4.2%). This may reflect greater exposure to employment opportunities during their studies among male students, although the majority of students in both groups had not yet received direct recruitment approaches.

4.3.8 Students' suggestions and future needs

In addition to closed-ended questions, students were invited to share their views through a series of open-ended questions designed to capture their experiences, expectations, and recommendations regarding employability support. These qualitative responses provide a richer understanding of students' priorities by identifying the employability activities they value most, the practices they believe should be strengthened, the additional training they consider necessary, and their broader reflections on university preparation for the labour market. Together, these responses complement the quantitative findings by highlighting common themes, emerging needs, and opportunities to enhance CDCs' services and university-employer collaboration across the MOVE partner institutions.

4.3.8.1 Most Valuable Employability Activities

Students were asked to identify the employability activity they considered most valuable and to explain how it had contributed to their professional development. The qualitative responses reveal a strong consensus on the importance of practical, experience-based learning opportunities.

The most frequently mentioned activity was practical training through internships and fieldwork. Students consistently highlighted that internships enabled them to apply theoretical knowledge in real-world professional settings, gain firsthand experience of workplace requirements, develop technical and transversal competencies, and build confidence before entering the labour market. Many respondents also emphasised that internships facilitated direct contact with employers and increased their employment prospects.

A second recurring theme concerns visits to fields and companies, particularly in the food industry, agriculture, laboratories, and environmental facilities. Students valued these experiences for allowing them to observe production processes, quality assurance systems, environmental monitoring practices, and industrial technologies in real-world contexts. These activities were seen as an effective bridge between classroom learning and professional practice.

Laboratory practice also emerged as an important employability activity. Respondents appreciated opportunities to conduct analyses, use specialised equipment, and develop practical skills directly related to their disciplines. Many students reported that laboratory work helped them better understand theoretical concepts and strengthened their technical competence.

Another frequently mentioned category included technical workshops, professional certifications, and employability training. Students cited activities such as HACCP, ISO standards, food safety, CV preparation, LinkedIn, interview preparation, and other specialised workshops.

These initiatives were considered particularly valuable because they provided practical knowledge aligned with employer expectations and improved students' readiness for recruitment processes. Several respondents also highlighted the value of research projects, innovation activities, competitions, and community engagement initiatives, which helped them strengthen problem-solving, teamwork, leadership, and project management skills while expanding their professional networks.

Although less frequently, some students mentioned entrepreneurship-related activities, including business development programmes, innovation challenges, and mentoring, recognising their contribution to creativity, self-employment opportunities, and entrepreneurial thinking.

Finally, a small group of respondents reported that they had not participated in any employability activities, or that available initiatives were too theoretical and insufficiently aligned with labour market needs. These responses reinforce the importance of expanding access to practical learning opportunities across participating universities.

Although the overall pattern is highly consistent across respondents, minor differences emerge by academic background and gender. Students in agricultural engineering tend to place slightly greater emphasis on internships, fieldwork, and direct contact with employers, whereas those in environmental sciences and environmental engineering refer somewhat more often to laboratory activities and technical workshops. Similarly, male students mention internships and practical field experience slightly more often, while female students place relatively greater emphasis on workshops, laboratory practice, and research-related activities. However, these differences are modest, and the dominant finding across all groups is the high value placed on experiential learning. Regardless of discipline or gender, students consistently identify internships, practical training, and direct exposure to professional environments as the employability activities that contribute most to their professional development.

Qualitative evidence clearly indicates that students view hands-on experience as the most valuable contributor to employability. Activities that enable direct interaction with professional environments, employers, and real-world workplace challenges are consistently seen as more beneficial than classroom-based activities alone. This evidence reinforces the quantitative results presented throughout this report and underscores the need to further strengthen internships, field-based learning, industry visits, laboratory practice, and employer engagement within CDCs.

4.3.8.2 Practices to improve

Students were asked to identify the employability practices that should be improved or expanded at their universities. Responses reveal a strong consensus that employability support should place greater emphasis on practical, experiential learning and closer engagement with professional environments.

The most frequently mentioned recommendation concerns fieldwork and practical training. Many students emphasised the need to expand field activities, practical exercises, and hands-on learning opportunities that enable them to apply theoretical knowledge in real-world agricultural and environmental settings. Respondents consistently argued that practical experience is essential for developing professional competencies and building confidence before entering the labour market.

A second recurring theme is the expansion of workshops, short courses, and professional training. Students expressed strong interest in more frequent workshops focused on technical skills, employability, entrepreneurship, and professional development. Many respondents emphasised the importance of interactive, practice-oriented training delivered by academics and industry professionals.
Another major area for improvement concerns software training and digital competencies. Students repeatedly requested greater exposure to specialised software and digital tools relevant to the agricultural and environmental sectors, including GIS, remote sensing applications, statistical software, precision agriculture technologies, and other digital platforms increasingly in demand by employers.

Many respondents also called for more internships and structured work-based learning opportunities, arguing that stronger collaboration with employers would ease the transition from university to employment. Several students recommended expanding partnerships with companies, increasing internship placements, and strengthening links between academic programmes and labour market needs.
Although mentioned less frequently, students also suggested expanding company visits, laboratory practice, and exposure to modern technologies and equipment, indicating a desire for greater contact with professional environments throughout their studies.

Although the evidence is highly consistent across respondents, some differences emerge by academic background and gender. Students in agricultural engineering place slightly greater emphasis on expanding fieldwork, practical training, and direct exposure to agricultural production systems, whereas those in environmental sciences and environmental engineering more often highlight the need for additional software training, technical workshops, and specialised digital skills. Gender differences are less pronounced. Female students refer somewhat more often to workshops, software training, laboratory activities, and technical courses, while male students place slightly greater emphasis on field-based learning and practical experience. Despite these minor variations, students across all groups consistently identify practical learning, technical training, and stronger links with professional environments as the main priorities for improving employability support.

Responses consistently point to the same conclusion: students perceive that employability can be strengthened primarily through more practical learning opportunities, greater exposure to professional practice, enhanced digital and technical training, and stronger university-industry collaboration. These findings reinforce the quantitative results presented throughout this report and highlight the importance of experiential learning as a central component of employability strategies within the MOVE consortium.

4.3.8.3 Additional training needs

Students were asked to identify the additional training they would like universities to provide to strengthen their employability. Qualitative responses reveal a strong demand for specialised technical and digital competencies that complement the knowledge gained through their degree programmes and respond to emerging labour market requirements.

The most frequently requested training area focuses on digital and data-driven competencies. Many students specifically cited data analysis, data science, artificial intelligence, and GIS as priority areas for future training. These technologies are increasingly recognised as essential tools for decision-making, environmental management, precision agriculture, and the digital transformation of the agricultural and environmental sectors.

Another recurring theme concerns specialised technical training. Students frequently requested additional preparation in EIA, soil analysis, irrigation design, precision agriculture, UAV (drone) operation, and remote sensing. These responses suggest that students perceive a need to strengthen competencies directly associated with current professional practice and technological innovation in their disciplines.

Several respondents also expressed interest in food safety, quality management systems, and professional certifications, including HACCP and ISO training, while others requested greater exposure to laboratory techniques, sustainability, environmental monitoring, and specialised analytical methods.

A number of students indicated they would welcome additional practical or professional training opportunities, reflecting a strong willingness to continue developing their competencies beyond the formal curriculum. Rather than requesting isolated courses, many respondents emphasised the importance of continuous learning and access to training closely aligned with labour market needs.

Although training needs are remarkably consistent across respondents, some differences emerge by academic background and gender. Students in agricultural engineering place slightly greater emphasis on training in irrigation design, soil analysis, precision agriculture, and UAV applications, reflecting the practical, production-oriented nature of their programmes. By contrast, students in environmental sciences and environmental engineering refer somewhat more often to artificial intelligence, data analysis, GIS, and research-oriented digital tools, highlighting the growing importance of data-driven environmental management. Gender differences are relatively limited. Female students tend to mention a broader range of digital and analytical competencies, particularly GIS, artificial intelligence, remote sensing, and data analysis, whereas male students place slightly greater emphasis on soil analysis, irrigation systems, and other field-oriented technical skills. Despite these minor variations, students across all groups consistently express a strong demand for advanced digital competencies and specialised technical training aligned with emerging labour market requirements.

These data demonstrate clear demand for training that integrates advanced digital skills with specialised technical competencies. Students consistently identify technologies such as data analysis, artificial intelligence, GIS, and precision agriculture, along with field-specific technical expertise, as priorities for improving their employability. These results reinforce the quantitative findings presented throughout this report, highlighting the growing importance of digitalisation, technological innovation, and lifelong learning in preparing graduates for careers in the agricultural and environmental sectors.

4.3.8.4 Final Comments

The final open-ended question invited students to share any additional comments or recommendations about their educational experience and employability preparation. While many respondents expressed appreciation for the opportunity to participate or indicated they had no further comments, the substantive responses reinforce many of the themes identified throughout the survey.

The most common theme is the need to strengthen links between universities and the labour market. Students repeatedly emphasized the importance of establishing closer collaboration with employers, expanding partnerships with companies and public organizations, and creating more opportunities for internships, practical placements, and graduate recruitment.

Several respondents explicitly expressed their desire for universities to play a more active role in facilitating employment opportunities after graduation.

A second recurring theme concerns the need to continue expanding practical and specialized training. Students encouraged universities to maintain and strengthen activities such as fieldwork, laboratory practice, technical workshops, and training in emerging technologies.

Many respondents considered these experiences essential for improving their professional readiness and competitiveness in the labour market.
Several comments also reflected students' broader aspirations for their future careers. Respondents expressed a strong desire to gain professional experience, contribute to the development of their countries and communities, and secure employment aligned with their academic qualifications.

These reflections underscore the importance students place on meaningful employment and the role they expect universities to play in supporting successful career transitions. Finally, a considerable number of respondents expressed appreciation for the survey, thanked the project team, or indicated they had no additional comments. Although these responses do not provide further analytical evidence, they suggest a generally positive level of engagement with the consultation process.

In general the final comments reinforce the central findings of this report. Students consistently call for stronger collabouration between universities and employers, more opportunities for practical learning, and employability services that facilitate a smoother transition from higher education to professional careers. Rather than introducing new priorities, these comments confirm the importance of the recommendations emerging from both the quantitative and qualitative analyses.

4.4 Good Practices in Graduates' Employability

4.4.1 Respondents' profile

A total of 63 graduates completed the online questionnaire. Respondents were alumni of universities participating in the MOVE project and represented the study's two targeted academic areas: Environmental Sciences/Engineering and Agricultural Engineering.
The sample's gender distribution was highly balanced. Of respondents, 50,8% were female and 49,2% were male, ensuring relatively equal representation of both genders in the analysis.

Regarding academic background, 57,1% of respondents graduated from Environmental Sciences or Environmental Engineering programs, while 42,9% graduated from Agricultural Engineering programs. This balanced distribution provides a solid basis for analysing employability experiences across the two disciplines that are the core focus of the MOVE project.

However, the distribution varies considerably by gender (Figure 15). Among female graduates, 58.1% completed Agricultural Engineering programs and 41.9% graduated from Environmental Sciences/Environmental Engineering. In contrast, among male graduates, 71.9% graduated from Environmental Sciences/Environmental Engineering and only 28.1% from Agricultural Engineering. These results reveal a clear gender-related difference in academic specialisation, with women more strongly represented in Agricultural Engineering and men more concentrated in Environmental Sciences and Environmental Engineering programs.

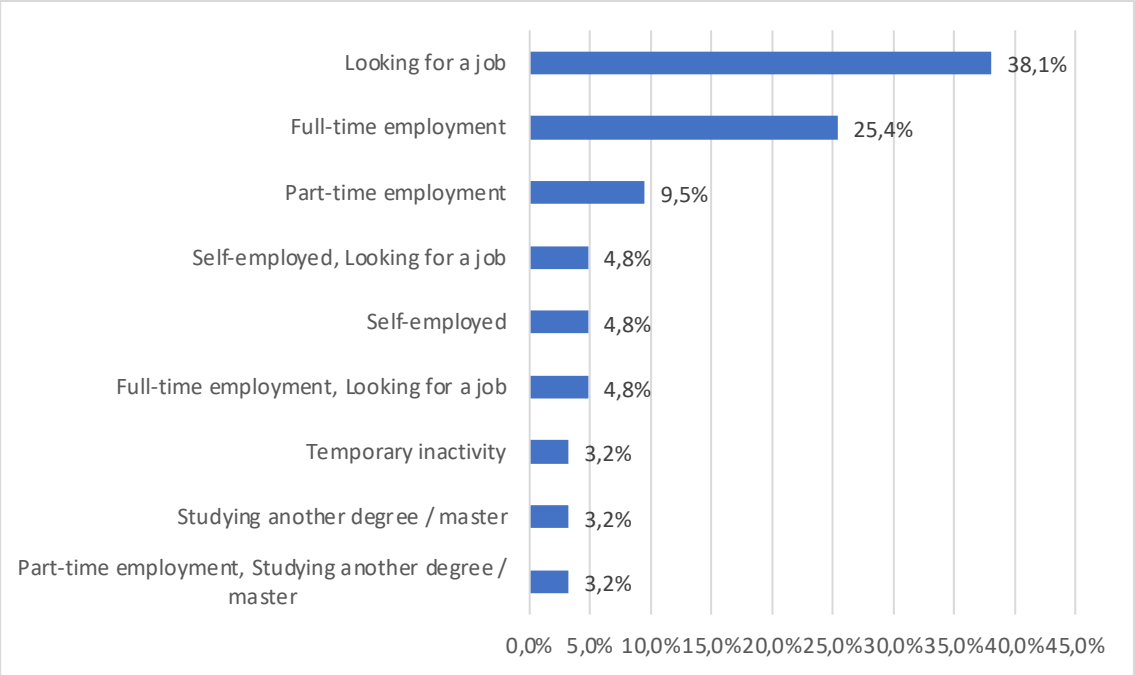
Respondents had a mean age of 32.6 years (SD = 8.9), ranging from 20 to 56 years. Including graduates from different age groups supports the study's benchmarking objective by capturing a wide range of employability experiences and professional trajectories.

Regarding graduation year, more than half of respondents (51.4%) reported graduating before 2024, indicating that the sample includes a substantial proportion of alumni with several years of professional experience. The remainder graduated in recent years, including 2024 (15.3%), 2025 (12.5%), and 2026 (8.3%), with a small number reporting other graduation years. This mix of recent graduates and more experienced alumni provides insights into both short-term and longer-term employability outcomes.

Regarding their current employment status and activities, 63 graduates answered this question. As multiple responses were allowed, these respondents generated 82 selections in total. Percentages are calculated on the basis of respondents (n = 63) and therefore may sum to more than 100%. This approach captures the variety of labour market situations respondents experience and reflects that some graduates simultaneously combine employment, job searching, further education, or other activities.

As shown in Figure 15, the most frequently reported situation was looking for a job (38.1%), followed by full-time employment (25.4%). Part-time employment accounted for 9.5% of all responses. Smaller proportions of responses referred to self-employment (4.8%) and to temporary inactivity and studying another degree or master's programme (3.2%).

These results suggest that graduates often experience multiple and overlapping transitions during their early professional careers. The coexistence of employment, continued education, self-employment and job searching highlights the increasingly flexible and non-linear nature of graduates' pathways into the labour market.



1Respondents were allowed to select more than one option when reporting their current situation. Percentages represent the proportion of all reported situations and not mutually exclusive categories.

Fig.15: Current laboral situation

The respondents' profile highlights the relevance of the issues addressed by the MOVE project. Although all participants are university graduates in disciplines closely linked to environmental sustainability, natural resource management, and agricultural development, a substantial proportion reported actively seeking employment. At the same time, many graduates combine employment, further education, self-employment, or job-search activities, reflecting increasingly complex and non-linear career pathways. These findings underscore the need to strengthen employability support mechanisms, enhance university-industry collaboration, expand access to practical learning opportunities, and support graduates during their transition from higher education to the labour market.

4.4.2 Interest in employment and career services

Graduates were asked to indicate their level of interest in a range of employability and career development services on a five-point Likert scale, with higher scores indicating greater interest (Figure 16). Overall, the results show a moderate to high level of interest in most of the proposed services, suggesting that graduates recognise the importance of career support initiatives for their professional development and labour market integration.
Understanding graduates' interests is especially relevant to the MOVE project because it helps identify which employability services are perceived as most valuable and where universities should prioritise future investments and support mechanisms. The results provide an initial indication of graduates' expectations regarding career development, labour market

integration, lifelong learning, and support for entrepreneurship.
The highest level of interest was in seeking employment in agriculture, water management, forestry, environmental sectors, renewable energy, and agri-food industries (3.65), highlighting graduates' strong orientation towards securing roles directly related to their field of study. This result aligns with the professional focus of the programmes included in the MOVE project and reflects graduates' willingness to enter specialised sectors aligned with their academic training.

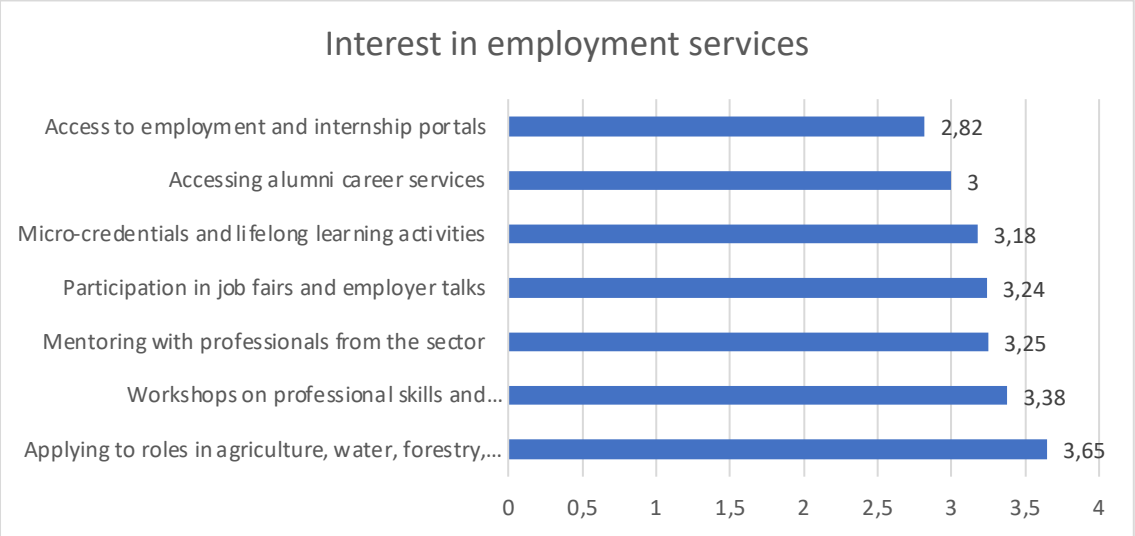


Fig.16: Interest in employment services

Relatively high levels of interest were also reported for workshops on professional skills and entrepreneurship (3.38), indicating that graduates value opportunities to strengthen their transversal competencies and entrepreneurial capabilities. Similarly, mentoring programmes with sector professionals (3.25) and participation in job fairs and employer talks (3.24) received positive evaluations, suggesting that graduates appreciate initiatives that enable direct interaction with employers and experienced professionals.

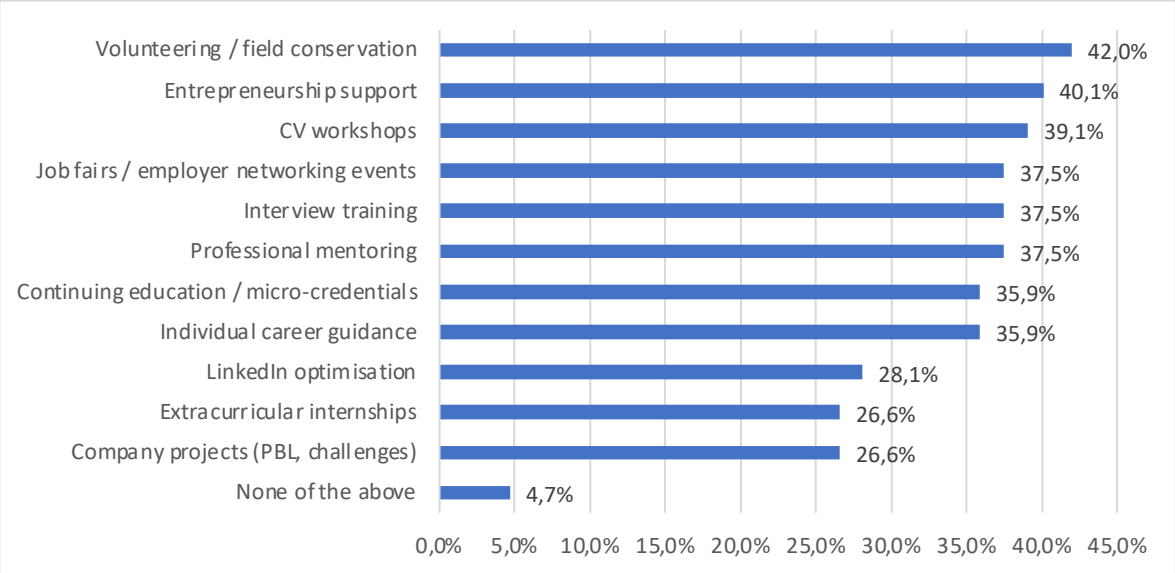
Interest in micro-credentials and lifelong learning activities related to GIS, remote sensing, soil analysis, climate data tools, and modelling was also noteworthy (3.18). This finding reflects graduates' awareness of the importance of continuous professional development and specialised technical training in rapidly evolving sectors.

Finally, graduates expressed a moderate level of interest in accessing alumni career services (3.00) and employment and internship portals (2.82). Although these services remain relevant, they appear less attractive than activities that involve direct engagement with employers, professional mentoring, or opportunities for skills development.

4.4.3. Participation in employability activities

To better understand graduates' employability needs and preferences, respondents were asked to identify the activities and resources they had used or considered relevant to their professional development. Because respondents could select multiple activities, the results should be interpreted as the proportion of graduates who reported each activity as used or of interest, rather than as mutually exclusive categories.

Figure 17 shows that the most frequently selected activities are closely linked to practical experience, professional development, and career preparation. Volunteering and field conservation activities were cited by 42.2% of respondents, making them the most frequently selected option. This finding suggests that graduates place considerable value on experiential learning opportunities that allow them to apply their knowledge in real-world contexts while contributing to environmental and community-related initiatives.



[1]Respondents were allowed to select more than one option when reporting their current situation. Percentages represent the proportion of all reported situations and not mutually exclusive categories.

Fig.17: Activities/resources used

Entrepreneurship support activities (40.6%) and CV workshops (39.1%) also ranked among the most valued resources. The strong interest in entrepreneurship is particularly noteworthy, reflecting graduates' recognition of self-employment and business creation as potential career pathways in the agricultural and environmental sectors. Likewise, the high level of interest in CV preparation indicates a continued need for practical career development support.

A second group of highly valued activities includes job fairs and employer networking events, interview training, and professional mentoring, each cited by 37.5% of respondents. These

results highlight the importance graduates place on direct interaction with employers and experienced professionals. Such activities appear to play a critical role in facilitating labour market access, improving career readiness, and strengthening professional networks.

Continuing education and micro-credentials, together with individual career guidance services, were selected by 35.9% of respondents. This finding reinforces the growing importance of lifelong learning and personalised support in increasingly dynamic labour markets. Graduates appear to recognise that employability requires continuous skills development beyond formal university education.

In contrast, LinkedIn optimisation activities (28.1%), extracurricular internships (26.6%), and company-based projects (26.6%) attracted less interest. Although these activities remain relevant, they appear to be perceived as less immediately valuable than initiatives focused on career preparation, networking, entrepreneurship, and practical engagement.

Finally, only 4.7% of respondents selected None of the above, indicating that virtually all graduates identified at least one employability activity they considered useful or relevant.

The results reveal a clear preference for employability initiatives that integrate practical experience, professional networking, career preparation, and entrepreneurship support. Graduates appear to value activities that provide direct exposure to the labour market and help develop technical and professional competencies. These findings suggest that Career Development Centers should prioritise experiential learning opportunities, employer engagement activities, mentoring programmes, and entrepreneurship support as central components of their employability strategies.

The most frequently selected activity is Volunteering and field conservation (27 selections), followed closely by Entrepreneurship support (26) and CV workshops (25). These findings indicate that graduates are interested not only in securing employment but also in developing broader professional experience and contributing to sustainability-related initiatives. The prominence of Entrepreneurship support is particularly noteworthy, reflecting a growing interest in self-employment, innovation, and the creation of solutions to environmental and agricultural challenges.

A second group of highly valued activities includes job fairs and employer networking events, interview training, and professional mentoring, each receiving 24 selections. This pattern indicates that graduates place high value on opportunities to interact directly with employers and professionals, improve their job-search skills, and expand their professional networks. These results reinforce the importance of maintaining strong university-business connections and providing personalised support mechanisms that facilitate labour market integration.

Similarly, 23 respondents selected Individual career guidance and Continuing education/ micro-credentials. This finding highlights the continued demand for personalised career support and lifelong learning opportunities. Graduates appear to recognise that

employability increasingly depends on continuous skills development and adaptation to changing labour market requirements.

Lower, though still significant, levels of interest are observed for LinkedIn optimisation (18 selections), extracurricular internships (17), and company projects (17). While these activities attract fewer selections than the highest-ranked services, they remain relevant tools for enhancing employability and professional readiness. Their comparatively lower frequency may reflect either lower awareness or a preference for activities that offer more direct contact with employers and professional networks.

The results suggest that graduates prioritise employability services that combine professional networking, personalised support, entrepreneurship development, and experiential learning opportunities. Career Development Centres should therefore adopt a comprehensive approach that integrates career guidance, employer engagement, entrepreneurship support, mentoring, lifelong learning, and sustainability-related experiences to maximise their impact on graduate employability.

4.4.4 Interest in alumni career services

Graduates report moderate satisfaction with the employability services provided by their universities (Figure 18). Mean scores range from 2.85 to 3.21 on a five-point scale, indicating generally positive but not outstanding evaluations. The results suggest that graduates recognise the value of employability support initiatives, yet none of the services achieves particularly high satisfaction, indicating significant room for improvement across the employability support ecosystem.

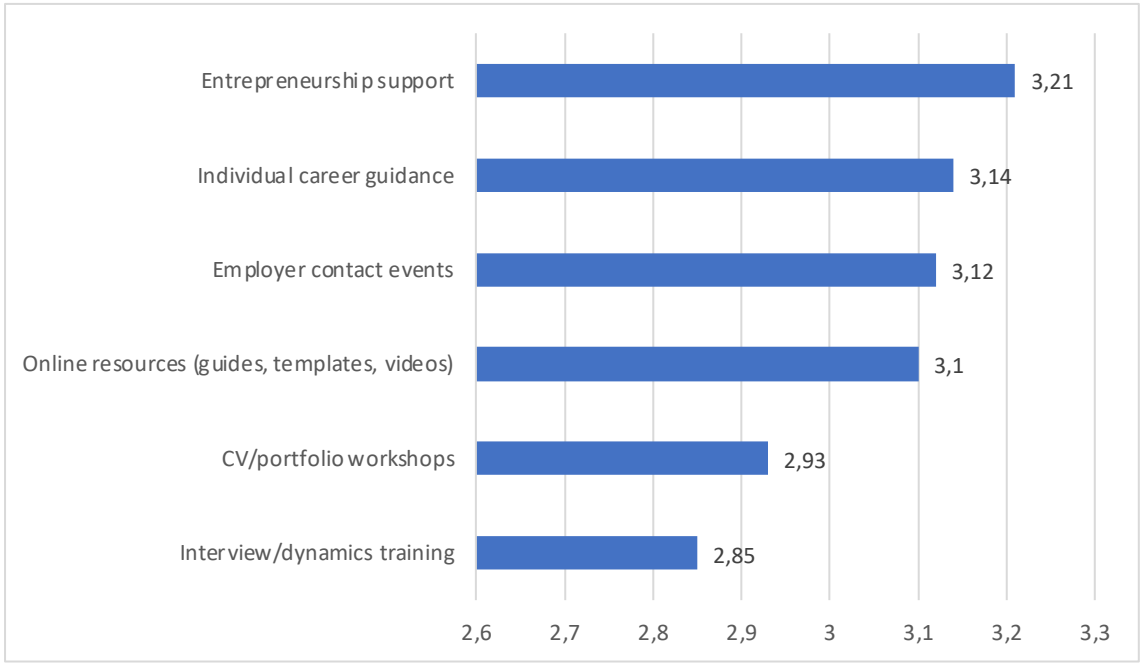


Fig.18: Satisfaction with employability services

The highest-rated service is entrepreneurship support (3.21), indicating that graduates value initiatives that promote entrepreneurial skills, innovation, and business creation. This finding aligns with the strong prior interest in entrepreneurship-related activities and underscores the importance of integrating entrepreneurship support into Career Development Centers.

The result is particularly noteworthy because entrepreneurship-related services not only receive the highest satisfaction scores but also emerge as among the most frequently selected employability activities, suggesting a strong alignment between graduates' interests and the perceived usefulness of these initiatives.

Individual career guidance (3.14) and employer contact events (3.12) also receive relatively favorable evaluations. These results underscore the importance of personalized support and opportunities for direct interaction with employers, both of which appear to contribute positively to graduates' employability experiences. Similarly, online resources such as guides, templates, and videos achieve a mean score of 3.10, indicating that graduates appreciate digital employability resources, though there remains room to improve accessibility, relevance, or user experience.

Lower satisfaction levels are observed for CV and portfolio workshops (2.93) and, particularly, for interview and selection process training (2.85). Although these services still receive moderately positive evaluations, they are the lowest-rated areas within the employability support portfolio. This may indicate a need to update methodologies, increase practical components, involve employers more actively, or adapt content more closely to current labour market requirements.

The results indicate that employability services are generally perceived as useful but have not yet reached their full potential. The relatively small differences among services suggest that improvements should focus not only on expanding provision but also on increasing the practical relevance, personalization, and labour market orientation of existing initiatives. Strengthening employer participation, incorporating real recruitment processes, and enhancing opportunities for hands-on learning may contribute to higher levels of graduate satisfaction and improved employability outcomes.

4.4.5 Quality of internships and early career experiences

Internships and early professional experiences are among the most important ways students and graduates develop practical skills, gain exposure to real-world work environments, and facilitate their transition from higher education to the labour market. For this reason, understanding both internship participation and graduates' perceptions of their quality provides valuable insights into the effectiveness of employability support systems and university-industry collabouration.

As a first step, graduates were asked whether they had completed an internship or training contract after graduation (Figure 19). Those who had participated in such experiences were then invited to evaluate various dimensions of internship quality, including recruitment processes, supervision, learning outcomes, working conditions, and the internship's contribution to employability.

54% of graduates reported completing an internship or training contract after graduation, while 46.0% had not participated in any such experience. This finding is particularly relevant, as it suggests that almost half of graduates did not benefit from structured work-based learning opportunities during their transition to the labour market.

Graduates offer a moderately positive evaluation of their internship and early job experiences, with average scores ranging from 3.11 to 3.80 on a five-point scale (Figure 5). Although no dimension reaches a very high level of satisfaction, all indicators remain above the midpoint of the scale, suggesting generally positive experiences among those who participated in internships or training contracts. The relatively narrow range of scores also indicates fairly consistent assessment across the different dimensions of internship quality.

The highest-rated dimension is tasks matched my field of study (3.80). This finding indicates that internship and job experiences are generally perceived as relevant and closely connected to graduates' academic backgrounds. Such alignment is particularly important because it facilitates the transfer of knowledge acquired during university studies into professional practice and strengthens the perceived value of higher education. It also suggests that when internships are available, employers are generally able to provide tasks that are meaningful and professionally relevant to graduates' fields of study.

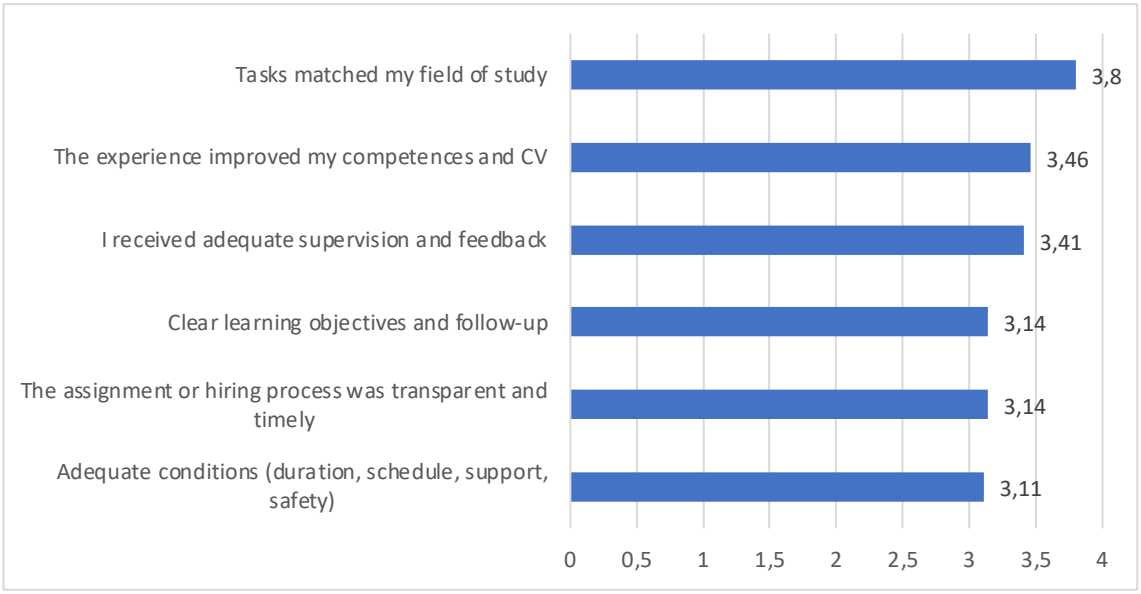


Fig.19: Quality of Internship

The second-highest score corresponds to the experience of improved competencies and CV (3.46). Graduates, therefore, view internships as valuable opportunities to develop professional skills, gain practical experience, and enhance their employability. This result reinforces the role of internships as an effective bridge between higher education and the labour market. The finding is particularly important because competence development emerged as one of the central employability outcomes identified throughout the study.

Similarly, supervision and feedback received a positive evaluation (3.41), suggesting that most graduates felt reasonably supported during their internship experience. However, there remains room to improve the systematic implementation of mentoring and follow-up processes. Strengthening these elements could further enhance the learning value of internships and improve graduates' professional development.

The lowest-rated dimension was the transparency and timeliness of the assignment or hiring process (3.14). Although this score is not negative, it suggests that some graduates experienced limitations in communication, transparency, or efficiency during recruitment and placement. Likewise, learning objectives and follow-up mechanisms (3.14) and working conditions (3.11) received comparatively low scores, indicating opportunities to strengthen quality assurance procedures and improve the overall internship experience.

A common pattern emerges from these results. Graduates tend to rate aspects directly related to the practical content and professional relevance of internships more positively, while organizational and management-related dimensions receive comparatively lower ratings. This suggests that improving internship administration, communication processes, and structured monitoring mechanisms may be an important area for institutional improvement.

A common pattern emerges from these findings. Internships provide relevant professional experience and contribute to competence development and employability. However, the relatively high proportion of graduates who did not participate in an internship highlights a significant challenge for universities. Increasing access to internships and strengthening cooperation with employers may therefore be among the most effective strategies for improving graduate employability and facilitating successful transitions into the labour market.

The results indicate that internship quality is generally satisfactory where opportunities exist. Consequently, the main challenge appears to be less about the quality of internships and more about ensuring broader access and participation among graduates. Expanding internship availability should therefore be considered a strategic priority for Career Development Centers and university-employer partnerships within the MOVE consortium.

4.4.6 University–Industry connection

The connection between universities and industry is widely recognized as a key determinant of graduate employability. Strong collaboration with employers and professional organizations can enhance the relevance of academic programs, facilitate the development

of labour market-oriented skills, and provide students with opportunities to gain practical experience before graduation. To assess this dimension, graduates were asked to evaluate several aspects of programme-industry interaction, including employer participation in teaching, collaborative projects, curriculum relevance, assessment of transversal competencies, and the availability of professional certifications and micro-credentials (Figure 20).

Graduates provide a moderate assessment of the extent to which their academic programmes were connected to industry and professional practice. Average scores range from 2.65 to 3.04, indicating that, while some mechanisms linking higher education and the labour market are present, there remains considerable room for improvement.

The results suggest that universities have made more progress in integrating industry perspectives into teaching than in developing structured forms of collaboration with external organizations.

The highest-rated aspect is the participation of external professionals in teaching activities (3.04). This suggests that graduates were exposed, at least to some extent, to practitioners and industry experts during their studies. Such participation can enhance the relevance of academic programs by bringing real-world perspectives into the classroom and helping students better understand labour market expectations.

Similarly, graduates perceive a moderate alignment between course content and current sector regulations and technological developments (3.00). This finding indicates that academic programs are reasonably responsive to changes in the agricultural and environmental sectors, although continuous curriculum updates remain necessary to keep pace with technological innovation and evolving professional requirements.

The assessment of transversal competences (2.96) and the availability of relevant micro-credentials or badges (2.96) are slightly lower. These results suggest that graduates perceive opportunities to strengthen the development and formal recognition of transferable skills, which are increasingly valued by employers and considered essential for long-term employability.

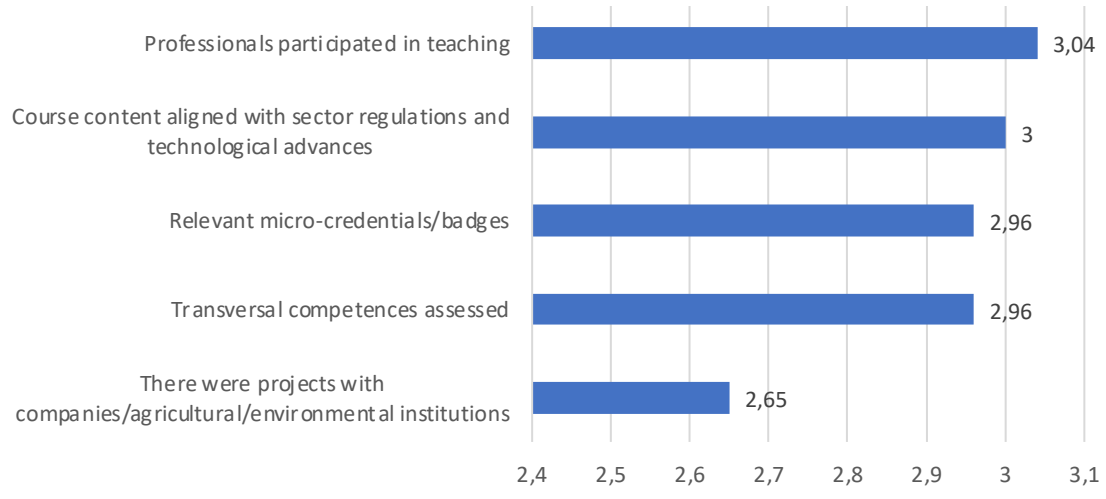


Fig.20: Programme connection to industry

The lowest-rated dimension concerns the existence of projects developed in collabouration with companies or agricultural and environmental institutions (2.65). This finding may indicate limited exposure to project-based collaboration with external organizations, which is often regarded as one of the most effective mechanisms for connecting academic learning with professional practice.

A common pattern emerges from these results. Graduates tend to rate initiatives that bring industry into the university environment, such as guest lectures and curriculum alignment, more favorably, while assigning lower scores to activities that require deeper, more sustained collaboration with employers, including joint projects and institutional partnerships. This suggests that university-industry interaction remains largely consultative rather than fully integrated into the learning process.

These findings reflect that programme-industry connections are present but remain relatively modest. While graduates acknowledge the contribution of external professionals and the reasonable alignment of course content with sector developments, stronger collaboration with companies and industry institutions, greater emphasis on project-based learning, and wider access to recognised micro-credentials could further enhance labour market readiness and graduate employability.

To complement the quantitative findings, graduates were invited to describe other forms of collaboration between their universities and external organizations. Their responses provide additional insight into the types of industry engagement currently experienced by students and graduates.

Responses indicate that, beyond formal employability initiatives, graduates have participated in various collaborative activities with external organizations. The most frequently cited experiences include field visits to companies, factories, and agricultural institutions, as well as guest lectures by industry professionals. These activities provide students with valuable exposure to professional environments and labour market realities.

Some respondents also mentioned field training, applied research support, innovation-related activities, and participation in exhibitions and workforce development initiatives. In addition, a few examples highlighted collaboration with community and specialized organizations, including schools for people with disabilities and agricultural nurseries.

The qualitative evidence suggests that university collaboration is primarily grounded in practical exposure and interaction with professionals. However, more structured forms of cooperation, such as joint projects, applied research partnerships, and long-term industry collaboration programs, appear less common and represent an area for further development.

The results indicate that the principal challenge is not the absence of university-industry interaction but rather the need to deepen and institutionalize existing relationships. Expanding collaborative projects, strengthening employer participation in curriculum design, and creating sustained partnerships with companies and professional organizations may therefore be among the most effective strategies for enhancing graduate employability within the MOVE consortium.

4.4.7 Competence development

The development of both transversal and technical competencies is a principal mechanism through which higher education contributes to graduate employability. In increasingly dynamic labour markets, employers require not only specialized knowledge but also a broad range of transferable skills, including communication, teamwork, adaptability, problem-solving, and digital competencies.

4.4.7.1 Transversal competencies

Graduates were asked to assess their competence across a range of transversal and employability-related skills on a five-point scale, where 1 indicates a very low level and 5 a very high level.

Graduates report relatively high confidence in their transversal competencies, with all dimensions scoring above 3.4 on a five-point scale (Figure 21). This suggests that respondents perceive themselves as reasonably well prepared for professional environments and labour market demands.

The highest-rated competency is teamwork (4.17), followed by communication and leadership (4.09), adaptability and continuous learning (4.04), and problem-solving (4.00).

These results indicate that graduates feel particularly confident in interpersonal and collaborative skills, as well as in their ability to adapt to changing circumstances and address workplace challenges

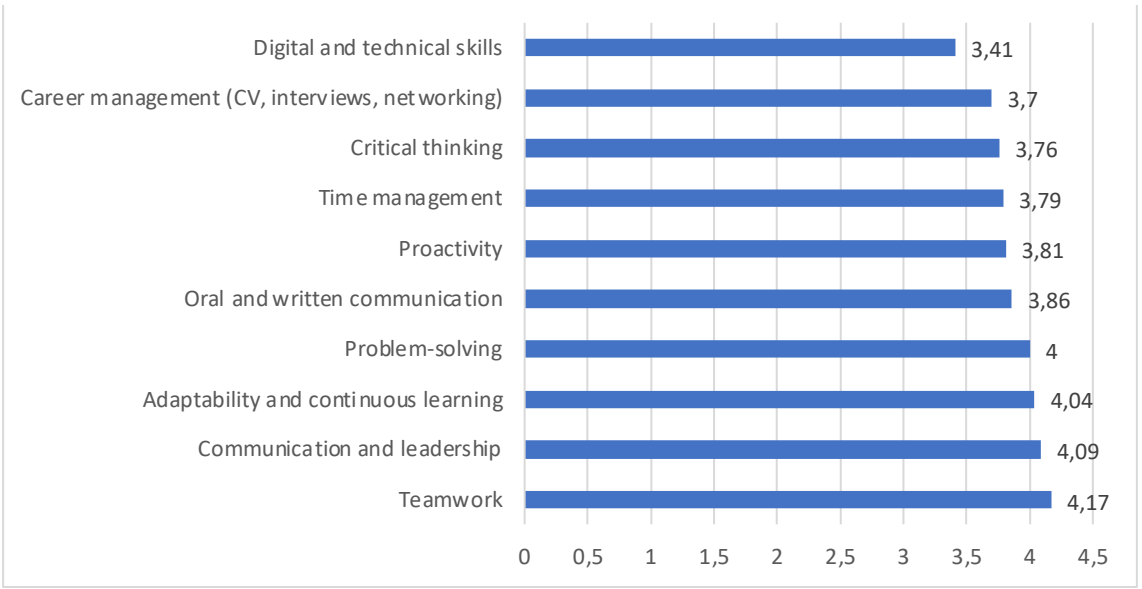


Fig.21: Level of Transversal Competencies

Strong scores are also observed in oral and written communication (3.86), proactivity (3.81), time management (3.79), and critical thinking (3.76). Together, these findings indicate that graduates perceive themselves as possessing many of the transferable competencies commonly associated with employability and professional success. The lowest-rated competencies are career management (3.70) and, particularly, digital and technical skills (3.41). Although these scores remain above the midpoint of the scale, they indicate areas where graduates feel less confident. This finding may reflect the growing importance of digital competencies, career planning skills, networking, and job-search strategies in contemporary labour markets..

A common pattern emerges from these results. Graduates report greater confidence in interpersonal, collaborative, and adaptive competencies than in skills directly related to career management and digital readiness. This suggests that universities are generally successful in developing transferable competencies but may need to strengthen support for career planning, professional networking, and digital employability skills.

4.4.7.2 Technical competencies

While the previous results focused on transversal competencies that are broadly applicable across occupations, employability in the agricultural and environmental sectors also depends on the development of specialised technical skills. The following analysis, therefore, examines graduates' perceived competence in key technical domains associated with their field of study (Figure 22).

Graduates report moderate confidence in field-specific technical competencies, with scores ranging from 2,60 to 3.52. Although the results remain positive, they are generally lower than those for transversal competencies, suggesting that graduates feel more confident in transferable skills than in specialised technical areas.

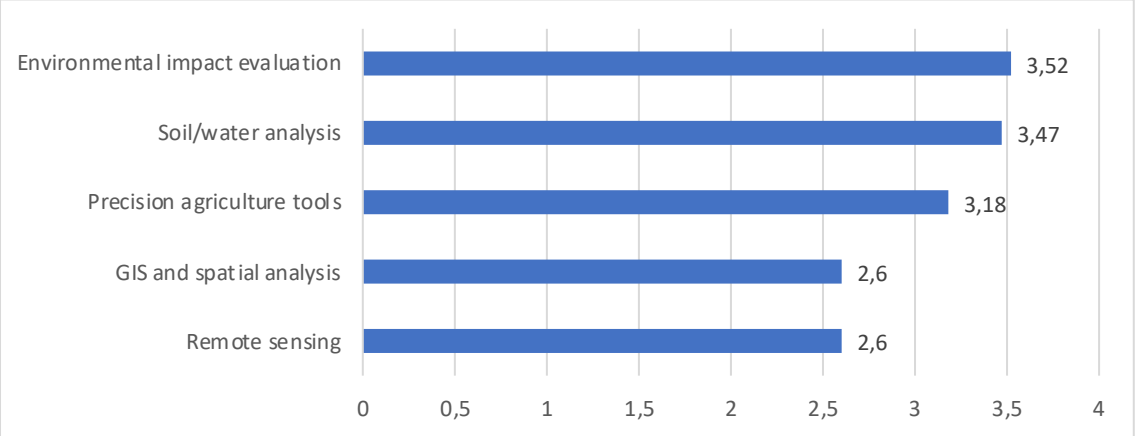


Fig.22: Level of Technical Competencies

The results indicate that graduates report moderate levels of confidence in the technical competencies associated with the agricultural and environmental sectors, with scores ranging from 2.60 to 3.52 on a five-point scale.

The highest-rated competency is environmental impact evaluation (3.52), followed closely by soil and water analysis (3.47). These findings suggest that graduates feel relatively well prepared in core disciplinary areas traditionally associated with environmental management, sustainability assessment, and natural resource conservation.

A second group of competencies receives intermediate evaluations. Precision agriculture tools (3.18) obtain a score above the midpoint of the scale, indicating a reasonable level of familiarity with technologies increasingly used in modern agricultural practices. However, confidence levels remain noticeably lower than those reported for more traditional technical areas.

The lowest-rated competencies are GIS and spatial analysis (2.60) and remote sensing (2.60). Both areas are closely linked to digitalization, geospatial technologies, and data-driven decision-making, which are becoming increasingly important across agricultural and environmental professions. The relatively low scores indicates that graduates may have had limited exposure to these technologies during their studies or perceive a need for additional specialized training.

A clear distinction emerges between traditional technical competencies and technology-intensive skills. Graduates report greater confidence in established disciplines, such as environmental assessment and resource analysis, but less confidence in digital and geospatial technologies.

These findings reinforce the results presented in the previous section, in which digital and technical skills also emerged as among the weakest areas of the overall competency profile. From a curriculum development perspective, the results suggest that greater emphasis on GIS, remote sensing, precision agriculture, and related digital technologies could further strengthen graduates' preparedness for the evolving demands of the labour market.

4.4.8 Employment outcomes

Employment outcomes are the most direct indicator of graduate employability. Beyond the development of competencies and participation in employability activities, labour market outcomes provide evidence of how effectively graduates transition into employment and how well their qualifications align with labour market opportunities. This section examines several dimensions of employment outcomes, including time to first employment, alignment between employment and field of study, contractual arrangements, professional satisfaction, and recent labour market opportunities.

4.4.8.1 Time to first employment

One of the clearest indicators of employability is the time taken to secure a first job after graduation. The results show a polarised pattern, with a significant proportion of graduates entering employment quickly, while others face substantial barriers to labour market entry

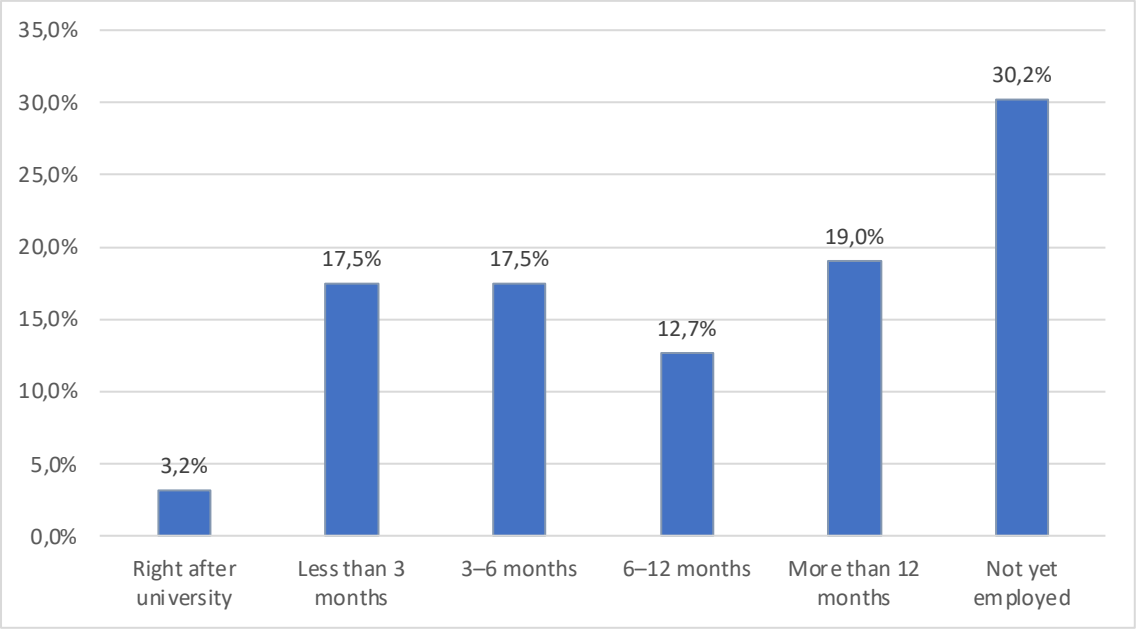


Fig.23: Time to first employment

The results reveal a heterogeneous transition from university to the labour market. While a substantial proportion of graduates secured employment relatively quickly, a significant number experienced longer transition periods or had not yet entered the labour market at the time of the survey.

Almost four out of every ten graduates (38.2%) secured their first job within the first six months after graduation, including a small group (3,2%) who entered employment immediately after completing their studies. This finding suggests that for a considerable segment of graduates, labour market integration occurs relatively smoothly and within a reasonable timeframe.

However, the results also reveal important challenges. Nearly one-third of respondents (30.2%) reported that they had not yet secured employment, making this the largest category. In addition, 19.0% reported that it would take more than 12 months to obtain their first job. Together, these figures suggest that a substantial proportion of graduates face difficulties transitioning from education to employment.

These findings reveal a dual reality in employability. While a substantial proportion of graduates experience a relatively smooth transition into employment, a sizeable group continues to face significant barriers to entering the labour market. This divergence underscores the importance of understanding not only whether graduates find employment but also the conditions that facilitate or hinder successful transitions.

4.4.8.2 Alignment beteween employment and field of study

An important indicator of graduate employability is how closely employment outcomes align with the field of study. This measure offers insight not only into labour market entry but also into the relevance of academic programs and their ability to prepare graduates for sector-specific careers (Figure 24).

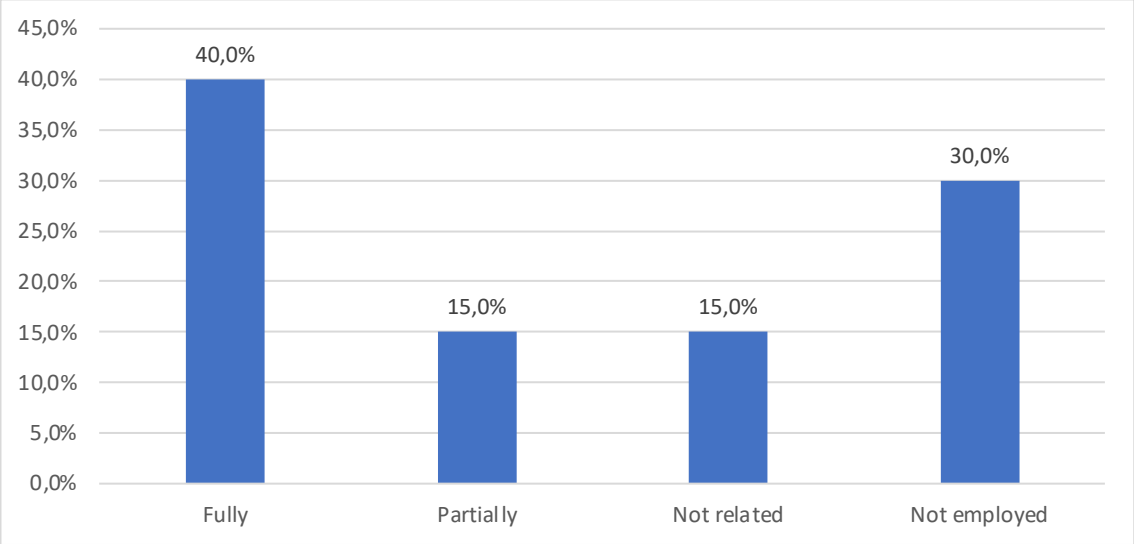


Fig.24: Relation of your current job to your field of study

The results show that 40.0% of graduates are currently employed in roles fully related to their studies, while a further 15.0% report working in roles partially related to their academic background. In summary, more than half of employed graduates (55.0%) have achieved some alignment between their education and their current occupation.

However, the findings also reveal important challenges. A substantial proportion of respondents (30.0%) reported not being employed at the time of the survey, while 15.0% indicated that their current job is unrelated to their field of study. These results suggest that although many graduates successfully enter occupations connected to their academic training, a considerable share either struggle to secure employment or find opportunities outside their area of specialisation.

The relatively high proportion of graduates working in roles directly related to their studies is a positive outcome, as it indicates that academic programmes are developing competencies relevant to labour market needs. Nevertheless, the coexistence of unemployment and occupational mismatch highlights the need to strengthen mechanisms that facilitate the transition from education to employment and to improve the alignment between graduate skills and employer demand.

When considered alongside previous findings on time to first employment, the results suggest that employability challenges extend beyond securing a job to include obtaining positions that effectively utilise graduates' qualifications and specialised knowledge.

The findings indicate that employability challenges extend beyond access to employment and include the quality and relevance of employment outcomes. Therefore, reducing occupational mismatch should be considered an important objective of employability strategies.

4.4.8.3 Type of employment contract

Beyond access to employment, the type of contract graduates hold provides important information about the quality and stability of their labour market integration. Contractual arrangements can offer insights into graduates' career prospects, job security, and the maturity of their transition to professional employment (Figure 25).

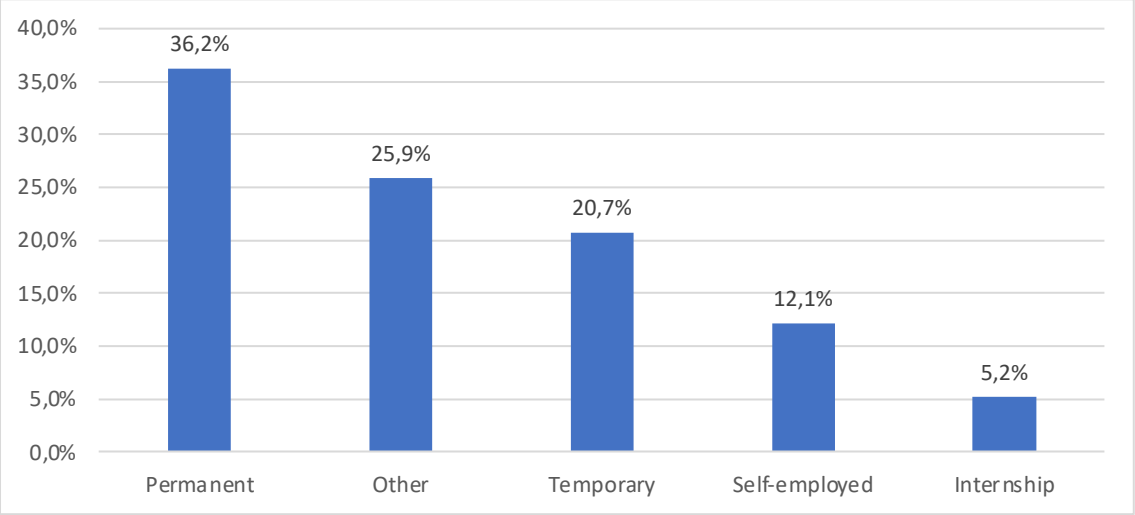


Fig.25: Type of employment contract to your field of study

The results indicate that permanent contracts are the most common employment arrangement, accounting for more than one-third of employed graduates (36.2%). This finding suggests that a significant proportion of respondents have already secured a relatively stable position in the labour market.

At the same time, temporary contracts remain an important form of employment, accounting for 20.7% of responses. This reflects the reality of many graduates' early career trajectories, in which temporary positions often serve as an entry point to professional employment before securing longer-term opportunities.

A notable finding is the relatively high proportion of respondents selecting Other (25.9%). This category may encompass a range of employment arrangements not captured by the predefined options, suggesting that graduates are increasingly engaging in diverse, non-traditional forms of work. Further exploration of these responses could yield valuable insights into emerging employment patterns.

The results also indicate a meaningful share of self-employment (12.1%), which is particularly relevant given the growing emphasis on entrepreneurship in the agricultural and environmental sectors. This finding aligns with previous results showing strong interest in entrepreneurial support activities and suggests that self-employment may be a viable career pathway for a segment of graduates.

Finally, only a small proportion of respondents remain in internship positions (5.2%), indicating that most employed graduates have moved beyond training-based contractual arrangements.

The results indicate that graduates pursue diverse employment trajectories. While many have already secured stable employment, others continue to navigate temporary, alternative, or entrepreneurial work.

4.4.8.4 Satisfaction with professional situation

Beyond objective employment outcomes, graduates were asked to assess their satisfaction with their current professional situation. This indicator offers valuable insight into how graduates perceive the quality of their employment outcomes and career progression (Figure 26).

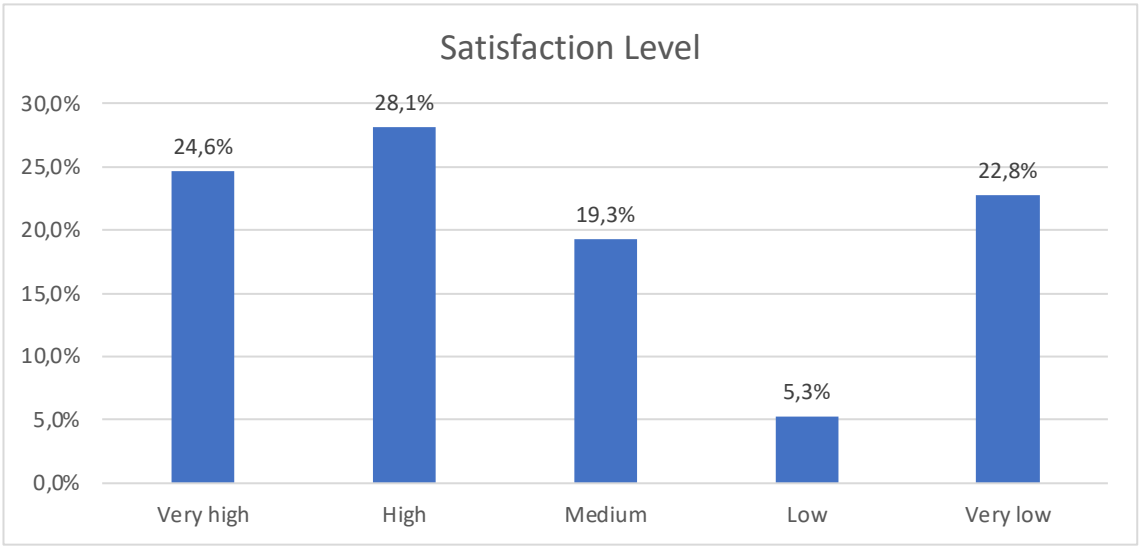


Fig.26: Satisfaction with professional situation

The results reveal a relatively polarised distribution. Slightly more than half of respondents (52.7%) report high or very high satisfaction with their professional situation, suggesting that many graduates view their current employment positively and feel reasonably satisfied with their career progression. However, a substantial proportion of respondents express lower levels of satisfaction. While only 5.3% report low satisfaction, 22.8% indicate very low satisfaction, making this the third largest category in the distribution. Together, these findings reflects that a significant minority of graduates remain dissatisfied with their current professional circumstances.

The presence of both highly satisfied and highly dissatisfied groups reflects the heterogeneous employment outcomes observed in earlier sections. While some graduates appear to have successfully integrated into the labour market and secured positions aligned with their expectations, others may still face challenges in accessing employment, securing high-quality jobs, progressing in their careers, or achieving alignment between their qualifications and current occupations.

When considered alongside the results on employment status, contract type, and time to first job, the findings suggest that employability outcomes extend beyond simply securing employment. The quality, stability, and relevance of employment opportunities play a critical role in shaping graduates' overall professional satisfaction.

The coexistence of highly satisfied and highly dissatisfied graduates further reinforces the heterogeneity of employment outcomes observed across this study.

4.4.8.5 Recent labour market opportunities

A final indicator of employability concerns graduates' recent interactions with the labour market. The number of interviews and job offers received provides insight into employer demand and graduates' visibility in the labour market.

The results indicate that a substantial share of graduates had limited contact with potential employers over the previous six months. The largest group of respondents (42.9%) reported receiving no interviews or job offers, underscoring that many graduates continue to face challenges in securing employment.

However, the findings also indicate that labour market demand exists for a significant share of graduates. More than half of respondents (57.1%) reported receiving at least one interview or job offer in the previous six months, while almost one-third (28.5%) received three or more opportunities. This suggests that a considerable proportion of graduates remain active and visible in the labour market.

The distribution once again reflects the heterogeneous employability outcomes observed throughout the survey. While some graduates appear to have strong labour market prospects and receive multiple job offers, others report very limited engagement with employers.

These differences may be associated with variations in professional networks, internship experience, field of specialisation, geographic location, or job-search strategies.

When considered alongside the results on employment status and time to first job, these findings suggest that labour market integration is uneven among graduates. For some, employment opportunities arise relatively quickly, whereas others face greater barriers to entering the labour market or attracting employer interest.

The results reveal a mixed picture of employability among the surveyed graduates. While many respondents achieve successful labour market integration, characterised by timely employment, alignment with their field of study, Figure contractual arrangements, and positive professional satisfaction, a substantial proportion continue to face challenges related to unemployment, occupational mismatch, and limited labour market opportunities. These findings highlight the importance of strengthening employability support systems, expanding internship opportunities, enhancing university-industry collaboration, and improving graduates' access to professional networks and career development resources.

4.4.9 Perceived impact of employability practices

While previous sections examined participation in employability activities, competence development, and employment outcomes, it is equally important to understand how graduates perceive the overall contribution of these experiences to their professional development.

Graduates were asked to indicate their level of agreement with a series of statements about employability, career preparedness, professional networking, and the contribution of university initiatives to their employment opportunities (Figure 27). These indicators provide insight into graduates' perceptions of their readiness for the labour market and the impact of their university experience on their professional development.

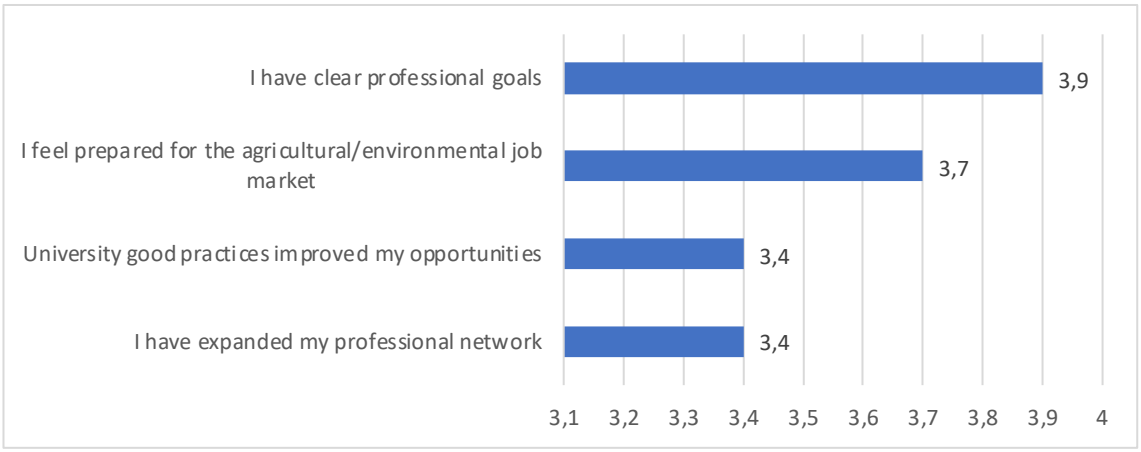


Fig.27: Perceptions of employability

The results suggest that graduates generally hold positive perceptions of their employability and career readiness. The highest-rated statement is I have clear professional goals (3.9), indicating that most respondents have a relatively well-defined sense of their future career direction and professional aspirations. This finding is particularly encouraging, as career clarity is often associated with stronger employability outcomes, greater motivation, and more effective job-search behaviour.

Graduates also report feeling reasonably prepared for the agricultural and environmental labour market (3.7). This finding aligns with earlier sections, in which respondents expressed relatively high confidence in their transversal competencies and moderate confidence in their technical skills. Taken together, these results suggest that graduates perceive themselves as broadly prepared to enter professional environments in their field. The consistency between competence development and perceived career readiness strengthens the overall picture of graduates as reasonably confident in their ability to navigate labour market challenges.

The perceived impact of university good practices on employment opportunities is rated moderately (3.4). While graduates generally acknowledge a positive contribution from university initiatives, the result suggests that the effect of these activities on employment outcomes is not uniformly strong across respondents. This finding may indicate that employability initiatives are valued, but their direct influence on securing employment is not always visible or immediate to graduates.

The same-rated statement addresses the expansion of professional networks (3.4). Although the score remains above the midpoint of the scale, it suggests that networking may be a relatively weak dimension of the university experience. This finding is particularly relevant given the importance of professional connections, employer engagement, and networking opportunities in facilitating access to the labour market. The result is also consistent with previous sections, in which employer interaction and industry collaboration emerged as areas needing further strengthening.

A common pattern emerges from these findings. Graduates tend to express greater confidence in outcomes that depend primarily on personal development, such as career clarity and preparedness, than in outcomes linked to external labour market connections, such as networking and employment opportunities. This suggests that universities are generally successful in supporting the development of individual competence but may be less effective in facilitating graduates' integration into professional networks and employer communities.

The results suggest that graduates feel personally prepared and have relatively clear career objectives, but perceive fewer benefits from professional networking and from the direct impact of university employability initiatives on their career opportunities.
The findings indicate that employability initiatives appear to contribute positively to graduates' confidence, preparedness, and career orientation. However, comparatively lower scores on networking and employment opportunities suggest that universities should strengthen activities that connect students directly with employers, alumni, and professional

communities. Expanding mentoring programmes, employer engagement activities, networking events, and industry partnerships may therefore be an important avenue for enhancing the perceived impact of employability practices within the MOVE consortium.

4.4.10 Graduates' suggestions and future needs

The final section of the survey invited graduates to reflect on their educational experience and to identify the employability practices they found most valuable, the services they believe should be improved, and the additional support they would like universities to offer.

The strongest and most consistent finding is the value graduates place on practical and experiential learning opportunities. Internships, field visits, laboratory sessions, practical training, graduation projects, and direct exposure to professional environments were repeatedly cited as the most beneficial components of their education. Graduates emphasised that these activities enabled them to apply theoretical knowledge, develop technical skills, and gain a realistic understanding of workplace expectations.

Many respondents highlighted field-based activities, practical laboratory work, and industry visits as particularly useful for bridging academic learning and professional practice. Others emphasised the importance of internships and hands-on training, noting that they improved confidence, strengthened employability, and provided valuable insights into future career paths. Professional mentoring and career guidance were also frequently cited as highly valuable for helping students understand labour market requirements and make informed career decisions.

These findings strongly reinforce the quantitative results presented earlier in the report, which identified internships, practical training opportunities, employer engagement activities, and competence development as among the most highly valued dimensions of the university experience.

The responses suggest that graduates view employability as being developed primarily through direct experience rather than through classroom-based learning alone.

When asked which services should be improved, respondents consistently emphasised the need for a stronger connection between universities and the labour market. The most frequently mentioned recommendation was to expand practical training opportunities, including internships, field placements, laboratory work, and employer engagement activities. Many graduates expressed concern that programmes remain overly theoretical and do not provide sufficient opportunities to apply knowledge in real-world settings.

A second recurring theme concerns career support services. Graduates requested more structured career guidance, professional mentoring, networking opportunities, and help connecting with employers. Several respondents highlighted the need for stronger alumni networks and platforms that facilitate interaction among students, graduates, and industry professionals.

Infrastructure and learning resources also emerged as areas for improvement. Some participants cited limited access to modern equipment, specialised laboratories, digital resources, reliable internet access, and up-to-date learning materials. Others emphasised the need to modernise curricula and ensure that educational content remains aligned with technological developments and labour market requirements.

Taken together, these recommendations suggest that graduates are seeking a more integrated employability ecosystem in which academic learning, practical experience, career guidance, and employer engagement are more closely connected.

The responses indicate strong demand for additional training that complements traditional academic programmes and enhances graduates' employability. Several priority areas can be identified.

First, there is considerable interest in digital and technology-related competencies, particularly GIS, remote sensing, spatial and data analysis, artificial intelligence, machine learning applications, and specialised software relevant to agriculture and environmental management. Graduates recognise the growing importance of digital technologies in their professional fields and express a desire for greater exposure to these tools during their studies.

Second, respondents frequently requested more specialised technical training in areas such as environmental impact assessment, food safety systems, quality management standards (including ISO and HACCP), biosecurity, sustainable agriculture, climate change, environmental management, and natural resource conservation. These requests indicate a strong interest in practical, professionally relevant competencies that can enhance employability and career progression opportunities.

Third, graduates emphasised the importance of employability and career development skills. Common suggestions included workshops on CV preparation, interview techniques, networking, entrepreneurship, project management, proposal writing, communication skills, and English language training. These responses reinforce earlier findings that graduates value support in navigating the transition from education to employment.

A significant finding is the emphasis on digital and technology-focused training requirements. The survey found that graduates often feel less confident in advanced digital skills yet are highly interested in learning about emerging technologies. This combination indicates that digital transformation should be a priority in future curriculum updates and in efforts to improve employability.

The qualitative evidence strongly reinforces the findings of the quantitative analysis. Graduates consistently value practical experience, direct contact with employers, and opportunities to apply their knowledge in real-world contexts. At the same time, they identify significant gaps in practical training, career support, networking opportunities, and access to emerging technologies.

Across institutions and countries, a common message emerges: graduates are seeking stronger integration of academic learning, practical experience, and engagement with the labour market. They expect universities not only to provide disciplinary knowledge but also to facilitate professional connections, career development, and access to the skills that employers increasingly demand.

The qualitative findings reveal a high degree of consistency among respondents. Despite differences, graduates identify similar strengths and challenges. Practical experience, employer engagement, career guidance, and digital skills emerge as common priorities for improving employability. These findings provide clear guidance for future action within the MOVE consortium and reinforce the importance of strengthening university-industry collaboration, expanding experiential learning opportunities, modernising curricula, and enhancing CDCs.

4.5 Transferable Lessons for KRG and Yemen

The benchmarking exercise offers a comprehensive overview of employability practices that have proven valuable from the perspectives of both current students and graduates. Although the participating universities operate in different institutional and national contexts, the findings reveal remarkably consistent patterns, suggesting that several employability practices can be successfully adapted by higher education institutions in the Kurdistan Region of Iraq (KRG) and in Yemen.

The first and perhaps most important lesson concerns the central role of experiential learning. Across both surveys, respondents consistently identified internships, laboratory practice, fieldwork, company visits, applied projects and direct exposure to professional environments as the activities that contribute most to employability. Students view these experiences as essential for understanding workplace expectations, applying theoretical knowledge, building professional confidence and easing the transition into employment. Graduates reinforce this view, reporting that internships were among the most valuable elements of their university education and that they significantly contributed to competence development and career readiness. These findings indicate that practical learning should not be treated as a complementary activity but as an integral component of higher education programmes.

A second transferable lesson concerns the strategic importance of CDCs. Both students and graduates expressed considerable interest in career guidance, employability workshops, mentoring, entrepreneurship programmes, networking events and personalised career support. At the same time, respondents indicated that these services should be more visible, more accessible and more closely connected to employers. The benchmarking therefore suggests that CDCs should evolve from administrative support units into comprehensive employability centres capable of coordinating career guidance, internship management, employer relations, entrepreneurship support, alumni engagement, labour market intelligence and graduate tracking. Such integrated structures would enable universities to provide continuous employability support throughout the student lifecycle.

The benchmarking also shows that strong university-industry collaboration is a key determinant of employability. Although respondents acknowledged the value of guest lectures, company visits and occasional collaboration with external organisations, both reports indicate a demand for deeper, more systematic partnerships with employers.

Students repeatedly requested more internships, practical projects and greater employer participation in academic programmes, while graduates emphasised the need for stronger professional networks and closer collaboration between universities and companies. Consequently, employability should be understood as a shared responsibility between universities and external stakeholders rather than as an exclusively academic function.

Another important lesson concerns the balance between transversal and technical competencies. Students and graduates generally expressed high confidence in transversal competencies such as teamwork, communication, adaptability, leadership and problem-solving, confirming that universities contribute positively to the development of transferable skills. However, both surveys consistently found lower confidence in digital and technology-oriented competencies, particularly GIS, remote sensing, data analysis, precision agriculture and other digital applications increasingly demanded by employers. This convergence across the two surveys suggests that curriculum modernisation should prioritise digital transformation while maintaining strong disciplinary foundations.

The benchmarking further highlights the growing importance of continuous professional development. Respondents from both surveys expressed interest in specialised workshops, short professional courses, micro-credentials, and internationally recognised certifications such as HACCP and ISO standards. They also identified artificial intelligence, environmental data analysis, precision agriculture, sustainability, project management, and entrepreneurship as priority areas for further training. These findings indicate that employability cannot be achieved solely through traditional degree programmes but requires flexible lifelong learning opportunities that enable graduates to continually update their competencies throughout their careers.

A further lesson concerns the importance of career management competencies. Although respondents generally felt academically prepared, they rated networking opportunities, career planning, labour market visibility and professional connections comparatively lower.

Graduates likewise recognised that securing employment depends not only on technical knowledge but also on effective job-search strategies, communication skills, professional networking and an understanding of recruitment processes. These results suggest that universities should explicitly integrate career management skills into their employability strategies through training in CV preparation, interview techniques, personal branding, LinkedIn optimisation and networking.

The qualitative findings also reveal the importance of student-centred employability strategies. Rather than requesting isolated interventions, respondents consistently described employability as a combination of practical experience, personalised guidance, employer

interaction, digital competence development and opportunities to build professional confidence. This holistic perspective demonstrates that employability is developed progressively throughout students' academic journeys and therefore requires coordinated institutional action rather than disconnected initiatives.

Finally, one of the most significant lessons from the benchmarking is that students and graduates identify very similar priorities, despite representing different stages of the educational pathway. Both groups consistently emphasise practical learning, stronger university-employer collaboration, enhanced digital competencies, entrepreneurship support and improved career services. This convergence provides robust evidence that these priorities reflect genuine institutional needs rather than isolated perceptions. Consequently, the practices identified throughout this benchmarking exercise constitute highly transferable models that can inform the design and strengthening of Career Development Centres and employability ecosystems across the MOVE partner universities in KRG and Yemen.

4.6 Implications for MOVE Partner Universities

The benchmarking findings have significant implications for the future development of employability strategies within the MOVE consortium. Rather than implementing isolated initiatives, partner universities should adopt an institutional approach in which employability is a strategic objective embedded across teaching, curriculum design, student services, and external engagement.

A first priority should be to consolidate CDCs as permanent institutional structures. Benchmarking shows that employability support should not be limited to career guidance but should also encompass internship coordination, employer engagement, alumni relations, entrepreneurship support, labour market intelligence, and graduate tracking. Developing CDCs as integrated employability hubs would enable universities to provide coherent support throughout the student lifecycle.

The findings also reinforce the need to modernise curricula in response to changing labour market demands. Future programme revisions should place greater emphasis on experiential learning, digital transformation, sustainability, entrepreneurship, and career management competencies. Curriculum development should be informed by regular consultation with employers, professional associations, graduates, and other external stakeholders to ensure that learning outcomes remain relevant to evolving sector needs.

Institutional collaboration with the productive sector should become a strategic rather than occasional activity. Universities should establish long-term partnerships with companies, public organisations, NGOs, and professional associations to support internships, collaborative projects, guest lectures, curriculum co-design, applied research, and graduate recruitment. Building stable institutional networks will contribute not only to graduate employability but also to regional innovation and knowledge transfer.

The benchmarking also highlights the importance of adopting a culture of continuous improvement supported by systematic evidence collection. Graduate tracer studies, student

employability surveys, employer feedback mechanisms, and periodic curriculum reviews should become regular institutional practices. These monitoring systems will enable universities to evaluate the effectiveness of employability initiatives, identify emerging skills needs, and continuously adapt their educational provision.

Another important implication concerns staff development. Strengthening employability requires academic and administrative staff to work collaboratively and develop new competencies in employer engagement, career guidance, project-based learning, entrepreneurship education, and digital teaching methodologies. Capacity-building activities should therefore accompany curriculum reform and organisational change.

Finally, the benchmarking confirms that employability should not be regarded as the responsibility of a single office or department. Instead, it should be recognised as an institution-wide mission requiring the active involvement of university leadership, academic departments, Career Development Centres, employers, alumni, students, and external stakeholders. Establishing this shared institutional commitment will increase the sustainability of the improvements promoted through the MOVE project and maximise their long-term impact beyond the project's lifetime.

Overall, the benchmarking provides a strategic framework for the next stages of the MOVE project. By strengthening institutional capacity, modernising curricula, reinforcing stakeholder collaboration, and embedding employability within university governance, partner institutions will be better equipped to prepare graduates for successful careers while contributing to the sustainable development of the agricultural and environmental sectors in the Kurdistan Region of Iraq and Yemen.

Chapter 5

Synthesis of Job-Market Trends, Gaps and Opportunities

5. Synthesis of Job-Market Trends, Gaps and Opportunities

The integrated evidence presents a consistent picture across the T2.2 labour-market survey (170 valid responses), the Career Development Centre benchmarking, the student survey (273 respondents), the graduate survey (63 respondents) and the consolidated stakeholder map (111 records). The sources are complementary rather than statistically representative of every institution or employer; however, convergence across employers, academics, students, graduates and institutional representatives provides a sufficiently robust basis for identifying common trends, gaps and opportunities at consortium level.

Labour-market direction. Demand for graduates in agricultural, environmental and related fields is expected to grow, with 81.6% of T2.2 respondents anticipating an increase over the next five years. The strongest opportunities are associated with agricultural technology and smart agriculture, sustainable and climate-resilient production, environmental monitoring, soil and water management, GIS and remote sensing, data analysis, digital transformation and appropriate AI applications. Employment pathways extend beyond conventional production roles to public administration, development programmes, research, environmental services, agribusiness, food systems, technology-enabled enterprises and self-employment.

Skills gaps and curriculum pressure. The principal concern is not the absence of theoretical knowledge, but the insufficient conversion of that knowledge into demonstrated workplace competence. In the T2.2 survey, 72.1% reported partial or no alignment between existing programmes and labour-market needs, while insufficient practical skills was the leading graduate weakness, followed by technical-knowledge gaps, limited industry experience, communication and problem-solving. Student evidence reinforces this pattern: technical competencies were generally rated lower than transversal and professional competencies, and digital skills, data analysis, specialised software, field practice and work-based learning were recurrent improvement priorities.

Employability transition. Students generally perceive that their studies provide a useful foundation, and graduates report relatively clear professional goals and reasonable readiness for the labour market. Nevertheless, the transition into employment remains uneven. Graduate evidence shows unemployment and occupational mismatch alongside successful employment outcomes; 42.9% of graduate respondents reported no interview or job offer during the previous six months. Networking, direct employer contact, career planning, recruitment preparation and the visible contribution of university employability initiatives were weaker than personal confidence and academic preparation. This indicates that curriculum reform must be accompanied by stronger career services and labour-market intermediation.

Institutional and cooperation opportunities. The Career Development Centre benchmarking shows broad recognition that employability is a university responsibility, but institutional maturity varies in governance, staffing, graduate tracking, employment observatories, employer relationship management, internship quality assurance, entrepreneurship support and impact measurement. The existing stakeholder map provides an immediate platform for

improvement. Advisory committees, structured internships, guest lectures, field visits, jointly supervised projects, applied research, recruitment events, mentoring and entrepreneurship activities can convert stakeholder interest into repeatable cooperation rather than isolated contacts.

Integrated priority agenda. The evidence supports five linked priorities for MOVE: (1) practice-intensive and problem-based curricula; (2) digital, technological, environmental and climate-responsive competence development; (3) systematic integration of communication, teamwork, problem-solving, project management, professional English, entrepreneurship and career-management skills; (4) structured internships and sustained university-employer cooperation; and (5) regular use of graduate tracking, employer feedback and labour-market information to review curricula and employability services. These priorities should guide WP3 curriculum update, WP4 and WP5 capacity building, and WP6 internship and employability pathways.

Chapter 6

Alignment Between Academic Programmes and Labour-Market Needs

6. Alignment Between Academic Programmes and Labour-Market Needs

The comparison between academic programmes and labour-market needs must be interpreted at consortium level. A complete, verified inventory of each partner university's programme titles, degree levels, learning outcomes, module content, practical components and internship arrangements is not yet available. Consequently, this section does not attribute specific strengths or deficiencies to individual institutions. Any institution-specific statement should be confirmed by the university concerned before inclusion in the final academic-offer mapping.

Current strengths. The combined evidence indicates that the existing academic offer provides an important scientific and theoretical foundation. Students generally report positive levels of preparation, and both students and graduates show confidence in teamwork, leadership, adaptability, sustainability and several professional competencies. Partner institutions also report existing career services, employer relationships, internships, training activities and entrepreneurship initiatives that can support curriculum implementation.

Priority mismatches. The main alignment gap lies between curriculum delivery and the competencies required in professional practice. Labour-market respondents emphasise practical experience, modern agricultural and environmental technologies, field research, environmental monitoring, soil and water management, GIS and remote sensing, data analysis and digital applications. Students and graduates similarly request more fieldwork, laboratories, specialised software, technical workshops, structured internships and direct engagement with employers. Transversal and career-management needs include communication, problem-solving, project management, leadership, professional English, entrepreneurship, CV and interview preparation, networking and understanding recruitment processes.

Curriculum adjustment priorities. Each selected programme should therefore be reviewed against a common competency framework covering applied agricultural technology and smart or climate-smart production; sustainable agriculture and environmental responsibility; field and laboratory methods; environmental monitoring; soil and water management; GIS, remote sensing and data analysis; relevant digital and AI-supported applications; and entrepreneurship, project management and professional communication. The appropriate emphasis will differ by discipline and institutional context, so the framework should guide programme-level decisions rather than impose identical content on every university.

Teaching, assessment and workplace exposure. Alignment cannot be achieved only by adding topics. Learning outcomes should be demonstrated through field assignments, laboratory work, real datasets, case studies, multidisciplinary projects, workplace simulations and problem-based assessment. Internships should include explicit learning outcomes, preparation, supervision, student deliverables, host feedback and post-placement reflection. Employer and practitioner contributions should be embedded through guest teaching, advisory groups, joint projects and periodic curriculum validation.

Programme-level verification and review. Each partner university should complete a verified academic-offer template that records programme name, degree level, principal learning outcomes, relevant modules, practical and digital content, internship arrangements, assessment methods and current external partnerships. The university should then map these elements against the common competency framework, identify duplications and omissions, and select the curriculum to be updated under WP3. Evidence from graduate tracking, employer feedback and labour-market monitoring should be reviewed at least annually so that alignment becomes a continuing quality-assurance process rather than a one-time revision.

On this basis, the alignment is best characterised as partial but improvable: the academic foundations and institutional structures are present, while practical application, digital and emerging technical competence, structured workplace exposure and systematic external feedback require strengthening. Final institution-specific conclusions should be agreed only after partner verification of the academic-offer information.

Chapter 7

Stakeholder Mapping and Institutional Cooperation

7. Stakeholder Mapping and Institutional Cooperation

The stakeholder-mapping exercise was undertaken to convert the labour-market findings of T2.2 into an operational network for curriculum consultation, practical training, internships, applied research and graduate employability. Partner institutions reviewed the initial template and submitted additional organisations, areas of competence and contact information. These contributions were consolidated into a single register, standardised so that each organisation appears as a separate record and classified according to its principal institutional function. The resulting map contains 111 stakeholder records across the Kurdistan Region of Iraq and Yemen, including the KAES and University of Duhok contributions. It should be treated as a living management tool rather than a static contact list: details should be verified before external communication, and the register should be updated whenever new cooperation is established or organisational responsibilities change.

7.1 Scope and Geographical Coverage

The consolidated map reflects the different institutional ecosystems surrounding the MOVE partner universities. In the Kurdistan Region of Iraq, the map covers regional ministries, universities and technical institutes, agricultural and environmental research centres, municipalities and directorates, private agricultural and food-production companies, professional and business bodies, and civil-society organisations. In Yemen, it covers national ministries, universities and faculties, environmental and water authorities, fisheries and agricultural bodies, research centres, private companies, UN agencies, foundations and community organisations. This cross-country structure allows the consortium to identify both shared stakeholder types and locally specific cooperation opportunities.

Geographical grouping	Number of mapped stakeholders	Main stakeholder profile
Iraq - Kurdistan Region	30	Regional ministries, universities, research centres, private agricultural companies and civil society
Iraq - Garmian	8	Municipality and directorates, chamber of commerce, vocational training, farms and food-processing companies
Yemen - Aden	12	National ministries, University of Aden faculties and centres, refinery, cement company and research/consultancy actors
Yemen - Hadhramout	13	Hadhramout University units, water, environment and fisheries authorities, and development organisations
Yemen - wider partner network	21	National ministries, HEIs, agribusinesses, UN agencies and civil-society organisations
Total	84	Consolidated partner stakeholder register

7.2 Stakeholder Groups and Strategic Relevance

The map groups stakeholders according to the role they can play in strengthening academia-job market relations. Public authorities and policy actors are essential for policy alignment, regulatory guidance, public-sector labour-market information and the sustainability of recommendations. Higher education and research institutions contribute to curriculum comparison, staff exchange, joint research, laboratory and field expertise, and dissemination. Private-sector and employer bodies provide direct evidence on occupational profiles, technology use, recruitment expectations and workplace performance, and are the principal source of internships, field placements, guest practitioners and employment pathways. Civil-society and community organisations connect academic programmes with local development needs, inclusion, environmental advocacy, livelihood projects and community-level implementation. International and development actors can provide technical standards, good practices, networking, capacity building and links to wider sustainable-development initiatives.

Functional stakeholder group	Mapped records	Primary relevance to MOVE
Public authorities and policy actors	26	Policy consultation; regulatory alignment; labour-market intelligence; public-sector placements; validation and sustainability of recommendations.
Higher education and research	26	Curriculum and programme comparison; joint research; technical expertise; laboratories and field sites; staff and student exchange.
Private sector and employer bodies	22	Skills validation; internships; workplace training; guest lectures; applied projects; recruitment and entrepreneurship links.
Civil society and community organisations	8	Community needs assessment; outreach; environmental and livelihood projects; inclusion; dissemination and local sustainability.
International and development actors	2	International good practice; technical support; capacity building; networking; food-security, climate and sustainable-development expertise.

7.3 Priority Cooperation Pathways

The value of the map depends on linking each stakeholder to a defined cooperation pathway. The following mechanisms respond directly to the survey findings on insufficient practical experience, incomplete programme alignment and the need for stronger digital, environmental and managerial competencies:

- **Curriculum consultation and validation:** Establish programme-level advisory groups involving employers, ministries, NGOs and technical experts. Stakeholders should review learning outcomes, practical components and assessment methods and comment on emerging competencies at least once each academic year.
- **Structured internships and field placements:** Match students with farms, companies, public directorates, laboratories, municipalities, research centres and development organisations. Each placement should include learning outcomes, a supervisor, student deliverables, host assessment and post-placement reflection.
- **Guest lectures, demonstrations and field visits:** Use practitioners to expose students to technologies, professional standards, current projects, workplace constraints, regulatory responsibilities and diverse career pathways.
- **Applied research and student projects:** Develop jointly supervised projects addressing water scarcity, soil quality, environmental monitoring, GIS applications, climate-smart agriculture, food production, waste management and other locally identified challenges.
- **Training and capacity building:** Mobilise mapped organisations as trainers, technical hosts or participants in short courses on agricultural technology, GIS and remote sensing, environmental monitoring, data analysis, entrepreneurship, project management and professional skills.
- **Graduate recruitment and entrepreneurship:** Invite employer bodies and companies to career events, recruitment sessions and entrepreneurship activities, and use their feedback to refine graduate profiles and Career Development Centre services.
- **Policy dialogue and dissemination:** Engage ministries, authorities and international actors in validation workshops, policy briefs and dissemination events so that project results inform institutional and sector strategies.

7.4 Engagement Approach by Stakeholder Type

A differentiated engagement approach is required because not every stakeholder should be involved in the same way. The consortium will apply four complementary levels: consult, collaborate, inform, and empower and train. Consultation is used to gather evidence and validate needs; collaboration involves direct participation in project outputs and implementation; information activities maintain transparency and awareness; and empowerment and training build the capacity of stakeholders and partner institutions to sustain results.

Stakeholder type	Consult	Collaborate	Inform	Empower and train
Policy makers and public authorities	Policy interviews, labour-market and regulatory dialogue	Validation workshops, policy recommendations and sector coordination	Briefs, findings and project events	Study visits, policy and technical capacity building
Universities and research centres	Academic-offer review, surveys and expert interviews	Curriculum review, research, laboratories and staff exchange	Research outputs, calls and dissemination	Training, peer learning and knowledge transfer
Companies and employer bodies	Skills surveys, interviews and employer roundtables	Internships, applied projects, curriculum input and recruitment	Cooperation opportunities and project results	Workplace training, mentoring and technical demonstrations
Civil society organisations	Community consultations and inclusion needs	Outreach, field activities, local projects and dissemination	Accessible updates and opportunities	Community-level training and sustainability actions
International actors	Advice on standards, good practice and sustainability	Technical synergies, networking and joint activities	Outputs, achievements and cooperation opportunities	Expert exchange and specialised capacity building

7.5 Governance, Follow-up and Updating of the Map

Each partner university should designate a focal person responsible for validating contact details, documenting engagement and reporting new cooperation. The master register should record the organisation, competence, contact person, role, contact information, web-site, responsible MOVE partner, proposed cooperation mechanism and engagement status. Contact information must be handled only for legitimate project purposes and should not be circulated beyond the consortium without appropriate verification. A minimum review cycle of once every six months is recommended, with additional updates before curriculum consultations, training programmes, internship calls and dissemination events. Engagement should also be monitored through simple indicators such as organisations contacted, respon-ses received, advisory meetings held, internship places offered, guest sessions delivered, joint projects initiated and stakeholder feedback incorporated into curricula.

The full consolidated register is provided in Annex 3. It includes the original stakeholder map and partner updates from the University of Sulaimani, University of Garmian, University of Aden, Hadhramout University, Selah Foundation, the Kurdistan Agricultural Engineering Syn-

dicate and the University of Duhok. The University of Duhok contribution adds 23 records covering university leadership, academic specialists in agriculture, food science, veterinary and biological fields, private companies, an agricultural supplies business and a government-agency contact. Blank fields indicate information that was not available or not sufficiently clear in the submitted partner files and should be completed during the verification round.

Chapter 8

Implications for WP3: Curriculum Update

8. Implications for WP3: Curriculum Update

The integrated T2.2 and benchmarking findings support a practical curriculum-modernisation agenda. These recommendations provide a working direction for WP3 and should be applied through partner-level verification of the selected academic offer. However, the implementation of these recommendations should be adapted to local labour-market conditions and institutional capacities. As the T2.2 findings are based on an aggregated consortium-level dataset covering institutions in both the Kurdistan Region of Iraq and Yemen, the resulting priorities should not be interpreted as applying uniformly across all regional and institutional contexts. In contexts such as Hadramout, where infrastructure and financial constraints may limit the immediate adoption of advanced agricultural technologies, priority should also be given to practical and affordable solutions addressing local challenges, including sustainable agricultural production, water scarcity, soil degradation and water-saving irrigation. Advanced technologies such as agritech, GIS, remote sensing and AI should therefore be progressively integrated according to local feasibility and implementation capacity.

- Prioritise applied agricultural technology and smart-agriculture content.
- Strengthen sustainable agriculture, climate adaptation and environmental responsibility.
- Integrate environmental monitoring, soil and water management, GIS and remote sensing, and data analysis.
- Prioritise practical and field-based learning, including fieldwork, laboratory practice, case studies and project-based assessment, particularly in contexts where graduates need strong applied skills to address immediate agricultural and environmental challenges.
- Embed teamwork, problem-solving, communication and project management across modules.
- Use stakeholder consultation to validate learning outcomes and update selected modules.

A two-stage approach is recommended for the selection of curricula: partner universities may identify one or two potential curricula at this stage, while the final choice should be agreed after completion of the D2.2 analysis and discussion during the consultative workshop.

Chapter 9

Implications for WP4 and WP5: Analysis of Training Needs

9. Implications for WP4 and WP5: Analysis of Training Needs

Training packages for academic staff and students should respond to the priority gaps identified in the integrated WP2 evidence. Final prioritisation should be confirmed through partner validation and the curriculum-selection process. Initial themes include applied agricultural technologies, smart agriculture, GIS and remote sensing, environmental monitoring, data analysis, soil and water management, practical teaching methods, teamwork, communication, problem-solving and project management.

Chapter 10

Implications for WP6: Internships and Employability Pathways

10. Implications for WP6: Internships and Employability Pathways

Internships should be designed as structured learning experiences rather than informal exposure. Each placement should include learning objectives, a defined host organisation, supervision, student deliverables and feedback. Stakeholder mapping should identify potential hosts and support a repeatable internship pipeline.

- Create a partner-level list of internship hosts and thematic placement areas.
- Link placements to specific technical and soft-skill outcomes.
- Use employer feedback to improve student preparation and curriculum design.
- Connect internships with guest lectures, applied research and student training programmes.

Chapter 11

Recommendations for the Update and Review of the Selected Curricula in Agricultural and Environmental Studies

11. Recommendations for the Update and Review of the Selected Curricula in Agricultural and Environmental Studies

The following recommendations are based on the integrated WP2 evidence and should be confirmed through the final partner validation of the academic offer:

1. Agree on a consortium-level shortlist of priority competencies and use it as the basis for curriculum review.
2. Strengthen practical and field-based learning through laboratories, field visits, applied assignments, case studies, demonstrations and project-based assessment.
3. Embed transversal skills across the curriculum, particularly teamwork, problem-solving, communication and project management.
4. Create structured stakeholder-cooperation pathways through internships, guest lectures, student training programmes, applied research and recurring employer feedback.
5. Complete and verify the academic-offer mapping at partner level so that programme-specific recommendations are grounded in confirmed programme information and the integrated labour-market evidence.
6. Maintain the stakeholder map as an operational tool and update it as partner inputs are received.
7. Identify potential curricula now and confirm one curriculum for review in each partner university after validation of D2.2 during the consultative workshop.

Chapter 12

Conclusion

12. Conclusion

Tchanged wiht the following: The integrated evidence gathered throughout Work Package 2 confirms the strategic direction underpinning the MOVE project and provides a robust evidence base for the design and implementation of its subsequent activities. Drawing on labour-market surveys, benchmarking studies, stakeholder mapping and the analysis of the existing academic offer, the findings provide a comprehensive understanding of the challenges and opportunities facing higher education institutions in the Kurdistan Region of Iraq and Yemen.

The findings clearly demonstrate the need to strengthen the alignment between university education and labour-market requirements. While existing academic programmes provide a solid disciplinary foundation, the evidence gathered from employers, graduates and other stakeholders highlights the importance of ensuring that curricula evolve in response to changing professional demands, emerging technologies and the green and digital transitions affecting the agricultural and environmental sectors. This underscores the importance of systematic curriculum review processes informed by labour-market intelligence and sustained dialogue with employers and other relevant stakeholders.

A second key conclusion concerns the importance of strengthening practical and experiential learning opportunities. The evidence indicates that graduates' employability can be enhanced through greater exposure to laboratory work, field activities, internships, project-based learning and other forms of work-based education. These approaches enable students to apply theoretical knowledge in real-world contexts, develop practical and professional competencies, establish connections with potential employers and facilitate their transition from university to employment.

The analysis also highlights the growing importance of integrating technical, digital and transversal competencies across academic programmes. In addition to discipline-specific knowledge, employers increasingly value digital literacy, data management, environmental monitoring technologies, communication, teamwork, problem-solving, adaptability and critical thinking. These competencies should therefore be embedded within curricula and learning activities to ensure that graduates are better prepared to respond to evolving occupational requirements and the changing needs of their respective sectors.

Another important finding concerns the need to strengthen institutional cooperation between universities and external stakeholders. The stakeholder mapping and benchmarking exercises demonstrate that closer collaboration with employers, public institutions, research centres, civil society organisations and professional associations can contribute to more relevant curricula, expanded internship opportunities, improved career guidance services and enhanced graduate employability. Establishing structured and sustainable partnerships with these actors will be essential to ensuring that higher education institutions remain responsive to labour-market developments and regional socioeconomic priorities.

The findings emerging from the triangulation of evidence collected from academic staff, students, graduates, employers, Career Development Centres and university managers provide a comprehensive foundation for the next phases of the MOVE project. In particular, the results will inform curriculum development and updating activities under WP3, capacity-building initiatives under WP4, the strengthening of Career Development Centres under WP5, and the development of university–business cooperation mechanisms under WP6.

In preparation for the implementation of WP3, Annex VI presents the templates of the curricula selected by each partner university for review and updating, following the assessment of curriculum needs and their alignment with labour-market requirements. These selections reflect the priorities identified by the partner institutions in light of the evidence gathered through WP2 and establish a clear starting point for the subsequent curriculum review process. The selected curricula will be examined to identify gaps, update learning outcomes and course content, strengthen practical and transversal competencies, and improve alignment with the evolving needs of the agricultural and environmental sectors.

Overall, Deliverable D2.2 consolidates the analytical and consultative work undertaken within WP2 and establishes a clear link between the project's evidence-based needs assessment and the curriculum development activities planned under WP3. By translating the findings into concrete priorities for curriculum review and updating, the report provides a foundation for improving the relevance, quality and labour-market responsiveness of the academic offer of the partner universities, thereby contributing to the overarching objectives of the MOVE project.

Annexes

Annex 1

T2.2 Online Survey Questionnaire

Annex 1
T2.2 Online Survey Questionnaire

Labour Market Needs Assessment in Agricultural and Environmental Studies

Purpose: Identify skills gaps and labour market needs to improve university programs.

Section 1 – Respondent Profile

1. What is your role?
    - o Employer / Industry professional
    - o Academic staff
    - o Student
    - o Graduate
    - o Government representative
    - o NGO / Development organization
2. Organization / Institution name Sector
    - o Agriculture
    - o Environmental management
    - o Research
    - o Government
    - o NGO
    - o Private industry
    - o Other
4. Years of professional experience
    - o 0–2
    - o 3–5
    - o 6–10
    - o 10+

Section 2 – Labour Market Demand

5. How would you describe the current demand for graduates in agriculture or environmental sciences?
    - o Very high
    - o High
    - o Moderate
    - o Low
    - o Very low
6. Which areas currently need more qualified professionals?
    - o Sustainable agriculture
    - o Environmental protection
    - o Climate change adaptation
    - o Water resource management

- Environmental impact assessment
- GIS and environmental data analysis
- Agricultural technology
- Other (specify)

7. In the next 5 years, how do you expect demand for these professions to change?
   - Increase significantly
   - Increase slightly
   - Stay the same
   - Decrease

Section 3 – Skills Needed by Employers

8. Which technical skills are most needed in your organization?
   - Field research
   - Environmental monitoring
   - Agricultural technologies
   - GIS and remote sensing
   - Data analysis
   - Climate adaptation strategies
   - Soil and water management
   - Other (specify)
9. Which soft skills are most important?
   - Communication
   - Teamwork
   - Critical thinking
   - Problem solving
   - Project management
   - Leadership
   - Other (specify)
10. How satisfied are you with the skills of recent graduates?
   - Very satisfied
   - Satisfied
   - Neutral
   - Dissatisfied
   - Very dissatisfied
   - Not applicable

Section 4 – Skills Gap

11. What are the main weaknesses you observe in graduates?
   - Lack of practical skills
   - Lack of technical knowledge
   - Lack of communication skills
   - Lack of industry experience
   - Lack of problem solving ability
   - Digital skills gap
   - English/foreign language skills
   - Entrepreneurship/innovation

12. Which new skills should universities teach more?

Section 5 – Academic Programs

13. Do you think current university programs match labour market needs?
    - o Yes
    - o Partially
    - o No
14. What should universities improve in their programs?
    - o More internships
    - o More practical training
    - o Stronger industry collaboration
    - o Updated curriculum
    - o New courses in emerging fields
    - o Integration of digital tools
    - o Industry-led courses

Section 6 – Collaboration Opportunities

15. Would your organization be interested in:
    - o Offering internships
    - o Participating in curriculum development
    - o Guest lectures
    - o Research collaboration
    - o Student training programs
    - o Joint supervision of student projects
    - o Participation in advisory boards

Section 7 – Final Recommendations

16. What are the top three priorities universities should focus on to improve employability?

Annex 2

T2.3 Institutional Survey

T2.3 Benchmarking of good practices on graduates and students employability

Within the framework of the T2.3 of the WP2, this survey has the objective to contribute to conduct a benchmarking of good practices on graduate and student employability, particularly related to the field agricultural engineering and/or environmental studies. This survey is addressed to the partner institutions to analyse good practices on career guidance, competences, internships, industry engagement, and impact measurement.

Thank you for your collaboration!
Best wishes
University of Murcia, leader of T2.3 of WP2

* Indica que la pregunta es obligatoria

1. Correo *

---

1) Career Development Services (CDC)

2. How would you describe the mission and purpose of your CDC within the university?

---

3. What are the main goals your CDC aims to achieve for students and graduates? *

---

4. How is the CDC positioned within the university structure (unit, department, rectorate, faculty-based, other)?

---

5. What is the structure of your staff in the CDC, and how is workload distributed across services?

---

6. What are the main expectations that university leadership has of the CDC? *

---

7. How do you define the CDC's role as a bridge between education and the labor market?

---

8. What major changes, if any, has the CDC experienced in the last 2 to 3 years? *

---

9. How do you evaluate their impact? *

---

10. How are the CDC's activities funded, and what are the main sources of financing?

---

11. How does the CDC communicate with students and recent graduates, and what channels work best?

---

2) Employment Observatory

12. Does your university have an employment observatory, and what does it do? *

---

13. What data do you collect about graduates, employment outcomes, employer needs, or trends?

---

14. How do you analyze and report data, and who uses these reports? *

---

15. How has labour market information influenced curriculum, program design, or CDC services?

---

16. What are the biggest difficulties in collecting and using labour market data? *

---

3) Career guidance

17. What types of career guidance services do you provide? *

---

18. How do you help students identify interests, values, and skills in relation to career choices? *

19. How do you support students in building career goals and concrete career plans? *

20. How do you adapt career guidance to different student groups *

21. How do you ensure the quality of advising and follow-up with students over time?*

4) Academia - Business relations

22. How does the CDC identify, recruit, and maintain relationships with employers and collaborating organizations?*

23. What value does the CDC offer to employers, and how is that value communicated? *

24. How do you manage employer data? *

---

25. What activities do you run to connect employers with students? *

---

26. What challenges do you face in attracting employers, and how do you respond to those challenges? *

---

27. How do you measure the quality of employer relationships, beyond counting the number of employers? *

---

28. What types of employment or career events do you organize, and what objectives do they serve? *

---

5) Internships

29. What internship opportunities are available for students, and what is the CDC's role in managing them? *

---

30. How are internship placements sourced, negotiated, and formalized with organizations? *

---

31. How do you collect feedback from students and employers after internships, and how is that feedback used? *

---

6) Job/Placement Agency

32. Does the CDC manage job offers, and if so, how is this organized? *

---

33. How do employers submit vacancies, and how are vacancies shared with students and graduates? *

---

34. How do you screen, match, or support applicants for vacancies, if applicable? *

---

35. What services do you provide to employers during recruitment and selection processes? *

---

36. What outcomes show the effectiveness of your placement activities? *

---

7) Entrepreneurship

37. Does your university have a specific unit dedicated to supporting * entrepreneurship? Please describe it

---

---

38. Who are your main target groups for entrepreneurship? *

---

39. What entrepreneurship activities do you run each year? *

---

40. What is the process from idea to startup at your university, and how do you * support students at each step?

---

41. How do you work with external partners, and what do they gain from the * collaboration?

---

8) Impact Measurement and Results

42. What indicators or KPIs do you track to understand CDC performance and * impact?

---

43. How do you collect feedback from students, alumni, and employers, and how * do you use it to improve services?

---

44. How do you define and measure employability outcomes in your university * context?

---

45. How do you report CDC results internally, and how often? *

---

46. What evaluation practices exist for specific services? *

Annex 3

T2.3 Students Survey

WP2: T2.3 Benchmarking of good practices on graduates and students employability

Within the framework of the T2.3 of the WP2, this survey has the objective to contribute to conduct a benchmarking of good practices on graduate and student employability, particularly related to the field agricultural engineering and/or environmental studies. The survey will aim to evaluate the awareness, use, quality, and impact of institutional employability practices and gather suggestions for improvement.

Thank you for your collaboration!
Best wishes
University of Murcia, leader of T2.3 of WP2

* Indica que la pregunta es obligatoria

1. Correo *

_____

1) Student Profile

2. **University**

_____

3. **Degree programme**

Marca solo un óvalo.

- ◯ Agricultural Engineering
- ◯ Environmental sciences / engineering
- ◯ Otro: _____

4. **Current year of study**

_____

5. **Sex**

Marca solo un óvalo.

- Female
- Male
- Prefer not to say

6. **Year of birth (YYYY)** *

_____

2) Competences and Skills

1 = Very low, 5 = Very high

7. **To what extent does your degree prepare you for professional work in the agricultural and/or environmental sectors?**

Marca solo un óvalo.

- Totally
- Mostly
- Partially
- Not sufficiently

8. **Rate your level in the following '*soft skills*'**

Marca solo un óvalo por fila.

	1	2	3	4	5
Oral and written communication					
Digital and technical skills					
Adaptability and lifelong learning					
Teamwork					
Communication and leadership					
Proactivity					
Critical thinking					
Problem-solving					
Time management					

9. **Technical field competences**

Marca solo un óvalo por fila.

	1	2	3	4	5
Precision agriculture technologies (sensors, drones, automation)					
GIS and spatial analysis					
Water management and irrigation systems					
Soil analysis and conservation					
Environmental impact assessment (EIA)					
Climate change adaptation and mitigation					
Biodiversity assessment and ecological monitoring					

10. **Professional/transversal competences**

Marca solo un óvalo por fila.

	Columna 1	2	3	Columna 4	5
Data analysis and scientific reporting					
Problem-solving in real-world field situations					
Teamwork and collaboration					
Communication with farmers, technical staff, or environmental stakeholders					
Leadership and project coordination					
Sustainability and ethical decision-making					
Digital and technical tools relevant to the sector					

3) Access and interest in Employability Resources

11. Visiting the career guidance and entrepreneurship services

Marca solo un óvalo.

	1	2	3	4	5	
Not	◯	◯	◯	◯	◯	Very much

12. Accessing internship and field-placement portals

Marca solo un óvalo.

	1	2	3	4	5	
Not	◯	◯	◯	◯	◯	Very much

13. Applying to job opportunities in **agri-food industries / environmental consultancies**

Marca solo un óvalo.

	1	2	3	4	5	
Not	◯	◯	◯	◯	◯	Very much

14. Attending job fairs and employer talks/roads on topics like **precision agriculture, agroindustry, renewable energies, conservation**

Marca solo un óvalo.

	1	2	3	4	5	
Not	◯	◯	◯	◯	◯	Very much

Marca solo un óvalo.

	1	2	3	4	5	
Not	◯	◯	◯	◯	◯	Very much

16. Joining **entrepreneurship programmes** (agritech, circular economy, sustainability solutions)

Marca solo un óvalo.

	1	2	3	4	5	
Not	◯	◯	◯	◯	◯	Very much

17. **Activities/services used or of interest:**

Selecciona todos los que correspondan.

- [ ] CV and cover letter workshop
- [ ] LinkedIn / personal branding session
- [ ] One-to-one career guidance
- [ ] Workshops on interviews and technical case studies
- [ ] Talks with companies in agriculture, agrotech, water, waste, or conservation
- [ ] Field visits / company or farm site visits
- [ ] Research internships or laboratory placements
- [ ] Job fairs and job shadowing / mentoring
- [ ] Projects with companies (PBL, challenges)
- [ ] Curricular internship in agricultural/environmental field
- [ ] Extracurricular internships
- [ ] Volunteering in conservation / sustainability projects
- [ ] Entrepreneurship incubators / startup programmes
- [ ] Micro-credentials (GIS, remote sensing, agro-data analytics, EIA, sustainability tools)
- [ ] International mobility opportunities
- [ ] None of the above

4) Internships and Professional Experience

18. **Have you completed or are you completing a field-related internship?**

Marca solo un óvalo.

- Yes
- No

19. **If yes, how useful was it for your employability?**

Marca solo un óvalo.

- Not useful
- Slightly useful
- Quite useful
- Extremely useful

20. **Quality of internships (1 = Strongly disagree, 5 = Strongly agree):**

Marca solo un óvalo por fila.

	1	2	3	4	5
The assignment process was transparent and timely	⬭	⬭	⬭	⬭	⬭
Tasks were aligned with agricultural/environmental technical training	⬭	⬭	⬭	⬭	⬭
I received regular supervision and feedback	⬭	⬭	⬭	⬭	⬭
I had clear learning objectives related to the field	⬭	⬭	⬭	⬭	⬭
The duration and fieldwork conditions were adequate	⬭	⬭	⬭	⬭	⬭
My feedback was collected at the end	⬭	⬭	⬭	⬭	⬭
The internship improved my professional skills and employability	⬭	⬭	⬭	⬭	⬭

5) Exposure to Industry and Professional Contexts

21. **Involvement with Agricultural & Environmental Employers** (1 = Strongly disagree; 5 = Strongly agree)

Marca solo un óvalo por fila.

	1	2	3	4	5
My courses included projects with real agricultural or environmental challenges	⬭	⬭	⬭	⬭	⬭
Practitioners (engineers, agronomists, consultants, technicians) were invited to classes	⬭	⬭	⬭	⬭	⬭
The curriculum integrates transversal competences relevant to the secto	⬭	⬭	⬭	⬭	⬭
The programme updates content based on current industry practices and regulations	⬭	⬭	⬭	⬭	⬭
Micro-credentials/badges are offered for tools used in the sector (QGIS, AutoCAD, drone operation, remote sensing, LCA tools, etc.)	⬭	⬭	⬭	⬭	⬭

22. **Do you know any other activities that connect your programme with the agricultural/environmental sectors?**

6) Perceived Employability Level

1 = Strongly disagree; 5 = Strongly agree

23.

Marca solo un óvalo por fila.

	1	2	3	4	5
I feel prepared to search for a job in the agricultural or environmental sector	⬭	⬭	⬭	⬭	⬭
I have clear professional goals	⬭	⬭	⬭	⬭	⬭
I have expanded my network (professionals, firms, researchers, farmers)	⬭	⬭	⬭	⬭	⬭
University employability actions have improved my opportunities	⬭	⬭	⬭	⬭	⬭

24. **Job offers/interviews in the past 6 months:**

Marca solo un óvalo.

- None
- 1–2
- 3–5
- More than 5

7) Suggestions and Comments

25. Which employability activity was most useful and why?

26. What practices should be improved or expanded (fieldwork, software training, workshops…)?

27. What additional training would you like (e.g., GIS, data science, EIA, irrigation design, UAV operation, soil analysis)?

28. Final comments

Annex 4

T2.3 Graduate Survey

Annex 4
T2.3 Graduate Survey

WP2: T2.3 Benchmarking of good practices on graduates and students employability

Within the framework of the T2.3 of the WP2, this survey has the objective to contribute to conduct a benchmarking of good practices on graduate and student employability, particularly related to the field agricultural engineering and/or environmental studies. In particular this questionnaire addressed to university graduates aims to assess awareness, participation, quality, and impact of employability practices and their contribution to the transition to the labour market.

Thank you for your collaboration!
Best wishes
University of Murcia, leader of T2.3 of WP2

* Indica que la pregunta es obligatoria

1. Correo *

_____

1) Graduate Profile

2. **University**

_____

3. *

Degree programme

Marca solo un óvalo.

- ◯ Agricultural Engineering
- ◯ Environmental sciences / engineering

4. **Sex**

Marca solo un óvalo.

- ◯ Female
- ◯ Male
- ◯ Prefer not to say

5. **Year of birth (YYYY)** *

_____

6. **Year of graduation**

Marca solo un óvalo.

- ◯ 2026
- ◯ 2025
- ◯ 2024
- ◯ Earlier

7. **Degree completed**

_____

8. **Current situation:**

Selecciona todos los que correspondan.

- ☐ Full-time employment
- ☐ Part-time employment
- ☐ Self-employed
- ☐ Looking for a job
- ☐ Studying another degree / master
- ☐ Temporary inactivity

9. Accessing alumni career services

Marca solo un óvalo.

	1	2	3	4	5	
Not	◯	◯	◯	◯	◯	Very much

10. Access to the employment and internship portals

Marca solo un óvalo.

	1	2	3	4	5	
Not	◯	◯	◯	◯	◯	Very much

11. Applying to roles in **agriculture, water, forestry, environment, renewable energies, agri-food**

Marca solo un óvalo.

	1	2	3	4	5	
Not	◯	◯	◯	◯	◯	Very much

12. Participation in job fairs and employer talks

Marca solo un óvalo.

	1	2	3	4	5	
Not	◯	◯	◯	◯	◯	Very much

Marca solo un óvalo.

	1	2	3	4	5	
Not	◯	◯	◯	◯	◯	Very much

14. Enrolling in **micro-credentials or life long learning activities** (GIS, remote sensing, soil analysis, climate data tools, modelling)

Marca solo un óvalo.

	1	2	3	4	5	
Not	◯	◯	◯	◯	◯	Very much

15. Workshops on professional skills and entrepreneurship (agritech, sustainabi innovation)

Marca solo un óvalo.

	1	2	3	4	5	
Not	◯	◯	◯	◯	◯	Very much

Selecciona todos los que correspondan.

- [ ] Individual career guidance
- [ ] CV workshops
- [ ] Interview training
- [ ] LinkedIn optimisation
- [ ] Job fairs / employer networking events in agricultural/environmental sectors
- [ ] Professional mentoring (engineers, consultants, agronomists)
- [ ] Company projects (PBL, challenges)
- [ ] Extracurricular internships or first job contracts
- [ ] Continuing education / micro-credentials
- [ ] Entrepreneurship support (agrotech, circular economy, environmental solutions
- [ ] Volunteering / field conservation
- [ ] None of the above

17. **Satisfaction with that services**: 1 = Very dissatisfied; 5 = Very satisfied
(If you did not use any, leave it blank; it will not count towards the average.)

Marca solo un óvalo por fila.

	1	2	3	4	5
Individual career guidance	◯	◯	◯	◯	◯
CV/portfolio workshops	◯	◯	◯	◯	◯
Interview/dynamics training	◯	◯	◯	◯	◯
Entrepreneurship support	◯	◯	◯	◯	◯
Employer contact events	◯	◯	◯	◯	◯
Online resources (guides, templates, videos)	◯	◯	◯	◯	◯

18.

Marca solo un óvalo por fila.

	1	2	3	4	5
The assignment or hiring process was transparent and timely	◯	◯	◯	◯	◯
Tasks matched my field of study	◯	◯	◯	◯	◯
I received adequate supervision and feedback	◯	◯	◯	◯	◯
Clear learning objectives and follow-up	◯	◯	◯	◯	◯
Adequate conditions (duration, schedule, support, safety)	◯	◯	◯	◯	◯
The experience improved my competences and CV	◯	◯	◯	◯	◯

19. I did NOT complete an internship/training contract after graduating

Selecciona todos los que correspondan.

☐ Mark if applicable

4) Retrospective: Programme Connection with Industry

20.

Marca solo un óvalo por fila.

	1	2	3	4	5
There were projects with companies/agricultural/environmental institutions	◯	◯	◯	◯	◯
Professionals participated in teaching	◯	◯	◯	◯	◯
Transversal competences assessed	◯	◯	◯	◯	◯
Course content aligned with sector regulations and technological advances	◯	◯	◯	◯	◯
Relevant micro-credentials/badges	◯	◯	◯	◯	◯

21. **Other university–industry collaboration activities?**

5) Competencies enhanced by good practices on employability

22. **Assess your level in the following competencies (1 = Very low; 5 = Very high)**

Marca solo un óvalo por fila.

	1	2	3	4	5
Oral and written communication	◯	◯	◯	◯	◯
Digital and technical skills	◯	◯	◯	◯	◯
Adaptability and continuous learning	◯	◯	◯	◯	◯
Teamwork	◯	◯	◯	◯	◯
Communication and leadership	◯	◯	◯	◯	◯
Proactivity	◯	◯	◯	◯	◯
Critical thinking	◯	◯	◯	◯	◯
Problem-solving	◯	◯	◯	◯	◯
Time management	◯	◯	◯	◯	◯
Career management (CV, interviews, networking)	◯	◯	◯	◯	◯

23. **Technical skills specific to the field (1 = Very low; 5 = Very high)**

Marca solo un óvalo por fila.

	1	2	3	4	5
GIS and spatial analysis	◯	◯	◯	◯	◯
Remote sensing	◯	◯	◯	◯	◯
Soil/water analysis	◯	◯	◯	◯	◯
Environmental impact evaluation	◯	◯	◯	◯	◯
Precision agriculture tools	◯	◯	◯	◯	◯

6) Employment Outcomes and Satisfaction

24. **Time to first job after graduation:**

Marca solo un óvalo.

- ◯ < 3 months
- ◯ 3–6 months
- ◯ 6–12 months
- ◯ > 12 months
- ◯ Not yet

25. **Current job related to your studies:**

Marca solo un óvalo.

- Fully
- Partially
- Not related
- Not employed

26. **Type of contract**

Marca solo un óvalo.

- Permanent
- Temporary
- Internship
- Self-employed
- Other

27. **Satisfaction with your professional situation:**

Marca solo un óvalo.

- Very high
- High
- Medium
- Low
- Very low

28. **Interviews/offers in the last 6 months:**

Marca solo un óvalo.

- None
- 1–2
- 3–5
- > 5

7) Perceived Impact of good practices

29. **Levels**: 1 = Strongly disagree; 5 = Strongly agree

Marca solo un óvalo por fila.

	1	2	3	4	5
I feel prepared for the agricultural/environmental job market					
I have clear professional goals					
I have expanded my professional network					
University good practices improved my opportunities					

8) Suggestions and Comments

30. Most useful practice and why

31. Missing or improvable services

32. Additional courses, workshops or support you would like

33. Final comments

Annex 5

Curricula selected to be reviewed under the WP3

Co-funded by the European Union

University of Duhok

Proposed Bachelor Programs for WP3 Consideration

Programme 1: Pesticides and Control Equipment

Proposed curriculum for College of Agricultural engineering

Item	Proposed Information
Name of curriculum / study programme	**1. Pesticides and Control Equipment**
Department, Faculty & Academic Level	– Department of Plant protection – College of Agricultural engineering sciences – Bachelor's Degree (B.Sc.)
Brief justification for selection	This candidate module directly supports WP2 priorities in applied agricultural technology, sustainable and climate-smart agriculture, advanced pest management, environmental responsibility and practical graduate preparation. Updating it can improve safe and effective pesticide use, strengthen integrated pest management and reduce risks to human health, water, soil and biodiversity.
Main gaps / areas requiring improvement	- Too little hands-on sprayer practice - Limited pesticide safety exercises - Insufficient field teaching - Weak integration with integrated pest management (IPM) - Lack of smart and modern technology
Module overview	After taking this course, the student will be familiar with the pesticide application in safely and role of pesticide in pest control.

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University of Duhok

Proposed Bachelor Programs for WP3 Consideration

Programme 2: Agri-Environmental Waste Management

Proposed curriculum for College of Agricultural engineering

Item	Proposed Information
Name of curriculum / study programme	**2. Agri-Environmental Waste Management**
Department, Faculty & Academic Level	– Department of Environment and Ecotourism – College of Agricultural engineering sciences – Bachelor's Degree (B.Sc.)
Brief justification for selection	This candidate module is strongly aligned with WP2 priorities in environmental protection and monitoring, resource efficiency, sustainability, climate adaptation and practical field competence.
Main gaps / areas requiring improvement	- Limited field practice - Insufficient use of local data - Limited training in waste prevention and resource recovery - Limited coverage of specialized waste streams - Recycling and circular economy principles
Module overview	This module provides students with foundational knowledge and practical approaches in waste management, with a focus on environmental sustainability and agricultural applications. The course covers types and sources of waste, principles of waste reduction, recycling, composting, hazardous materials handling, pollution prevention, and waste policy frameworks. Emphasis is placed on integrating sustainable waste management in rural and ecotourism contexts.

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Salahaddin University–Erbil

Proposed Bachelor Programs for WP3 Consideration

Programme 1: Animal Production and Health

Proposed Curriculum for the College of Agricultural Engineering Sciences

Item	Proposed Information
Name of curriculum / study programme	**1.Agribusiness and Entrepreneurship**
Department, Faculty & Academic Level	– Department of Animal Production and Health – College of Agricultural engineering sciences – Bachelor's Degree (B.Sc.)
Brief justification for selection	Agribusiness and Entrepreneurship helps students apply their learning to develop viable agricultural businesses. It enhances graduates' employability and enables them to start their own businesses rather than wait for government jobs. The module also responds to the findings of the MOVE WP2 report and aligns with the Ministry of Higher Education's recommendation to promote entrepreneurship.
Main gaps / areas requiring improvement	- Limited practice in livestock market analysis. - Insufficient training in farm finance and business planning. - Limited exposure to agricultural value chains and entrepreneurship. - Too few projects developed with employers.
Available curriculum documents / related supporting material	Literature review findings; **WP2 Report**; curriculum benchmarking; labour-market and stakeholder feedback; and relevant **SDGs, particularly SDG 2, SDG 8, SDG 9, and SDG 12**, and recommdendation by the misnistry of higher education.

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Salahaddin University–Erbil

Proposed Bachelor Programs for WP3 Consideration

Programme 2: Food Science and Technology

Proposed Curriculum for the College of Agricultural Engineering Sciences.

Item	Proposed Information
Name of curriculum / study programme	**- New Product Development (NPD)**
Department, Faculty & Academic Level	– Department of Food Science and Technology – College of Agricultural Engineering Sciences – Bachelor's Degree (B.Sc.)
Brief justification for selection	NPD gives Food Science and Technology students practical experience in identifying consumer needs, formulating products, testing quality and safety, and preparing products for the market. It helps graduates apply their technical knowledge to industry projects and develop skills for employment or food business creation. The module responds to the MOVE WP2 report's call for more practical learning, innovation and stronger links with employers.
Main gaps / areas requiring improvement	- New Product Development (NPD) is not currently included in the B.Sc. curriculum. - Limited hands-on practice in consumer research and identifying market needs. - Insufficient experience in product formulation, sensory evaluation and testing. - Limited training in improving products using consumer feedback. - Too few projects that take a food product from concept to a market-ready prototype. - Limited collaboration with food companies on product development projects.
Available curriculum documents / related supporting material	Literature review findings; **WP2 Report**; curriculum benchmarking; l-Many Universities adapted this module for launching new product. -The WP2 report identifies weaknesses in innovation and entrepreneurship, calls for practical projects, stronger industry links. These directly support an applied NPD module.

Co-funded by the European Union

University of Garmian

Proposed Bachelor Programs for WP3 Consideration

Programme 2: Environmental Chemistry

Proposed curriculum for College of Science

Item	Proposed Information
Name of curriculum / study programme	**2. Environmental Chemistry**
Department, Faculty & Academic Level	– Department of Chemical Science – College of Science – Bachelor's Degree (B.Sc.)
Brief justification for selection	Environmental chemistry studies the chemical phenomena, reactions, and processes that occur in water, air, soil, and living environments, as well as the impacts of human activities on these natural systems. This course connects fundamental molecular science to modern ecological and planetary crises throghu studying how pollutants originate, react, move, and transform across the earth's spheres. It is also focused on climate change explores how chemical processes in the air, water, and soil drive and respond to global climate shifts. This programme supports the needs for qualify environmental monitors in The Board of Environmental Protection and Improvement, and the environmental authorities in KR. The BEPI in KR needs staff or supervisors for industrial projects monitoring; the key requirement is that the supervisor must had studied a scientific subject related to the environment.

Main gaps / areas requiring improvement	The Environmental Chemistry course significantly enhances skills across several key sectors by bridging the gap between molecular science and ecological preservation. Taking this course strengthens expertise in pollution mitigation, green technology, sustainable resource management, environmental monitoring, climate change adaptation, and environmental policy. Also, this course supports the students with new educational materials that align with global regarding environment and climate change. As well as, new educational methods that suited to the labor market.
Available curriculum documents / related supporting material	Recommended supporting materials for the (Environmental Chemistry) course typically include foundational textbooks, online reference modules, and specialized modeling. This course covers the chemical processes, reactions, and composition of natural and engineered systems in the earth's air, water, and soil, alongside the impact of human activities. Students in an environmental chemistry course gain a deep understanding of how chemical processes affect air, water, soil, and living systems. Also, there are various available recommended support materials, including: the study plan, course specifications and its syllabus, program learning outcomes, guidelines for the graduation project, documentation on field practices, environmental regulations, and internationally benchmarked curricula from accredited Environmental Chemistry programs

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University of Garmian

Proposed Bachelor Programs for WP3 Consideration

Programme 2: Food Processing Technology

Proposed curriculum for College of Science

Item	Proposed Information
Name of curriculum / study programme	**2. Food Processing Technology**
Department, Faculty & Academic Level	– Department of Nutrition and Dietetics – College of Science – Bachelor's Degree (B.Sc.)
Brief justification for selection	**1. High Practical Dependency (3 out of 5 Weekly Contact Hours):** The curriculum requires significant practical/laboratory exposure (60% of total course hours) and factory field visits. This heavy practical weight makes it the course most acutely impacted by local laboratory equipment shortages and emergency shifts to distance learning. **2. Addressing Regional Food Security & Industry Needs in Iraq / Kurdistan:** Modernizing this course directly impacts local public health, regional food safety standards, and food processing efficiency—key pillars for economic sustainability and food security in the region. **3. Academic Bridge Between Theory and Application (Core 5-Credit Course):** As a foundational Level 2 (Semester 2) course in the Nutrition & Dietetics Department, it represents the primary academic transition from general science concepts to applied food safety, nutrient preservation, and industrial processing technologies.

Main gaps	**1. Limited modern laboratory access** Financial constraints limit access to modern processing, analytical, packaging and quality- control equipment. **2. Reduced hands-on learning during disruptions** Conflict-related disruptions have sometimes required online teaching, which cannot fully replace practical laboratory training. **3. Limited industry-based experiential learning** Local industries are not always ready to allow direct student visits, reducing exposure to real production and quality systems.
areas requiring improvement	• **Modern / low-cost laboratory alternatives** • **Simulation and case-based learning** • **Virtual and industry-supported training**
Available curriculum documents / related ? supporting material	This course introduces the principles and applications of food processing technologies relevant to Nutrition and Dietetics. Students study the effects of processing on nutritional value, food quality, safety, shelf life, sensory properties and consumer acceptability.

Co-funded by the European Union

University of Sulaimani

Proposed Bachelor Programs for WP3 Consideration

Programme 1: Environmental Engineering

Proposed curriculum for College of Environmental Sciences

Item	Proposed Information
Name of curriculum / study programme	**1.Environmental Engineering**
Department, Faculty & Academic Level	– Department of Environmental Sciences – College of Environmental Sciences – Bachelor's Degree (B.Sc.)
Brief justification for selection	Environmental Engineering is highly relevant to current environmental and infrastructure challenges, including water and wastewater treatment, solid and hazardous waste management, air pollution control, environmental impact assessment, contaminated sites, climate change, and resource recovery. The programme supports the need for qualified environmental engineers in municipalities, industries, consulting companies, environmental authorities, and water/wastewater utilities.
Main gaps / areas requiring improvement	Potential areas for improvement include stronger practical and laboratory training; advanced water and wastewater treatment technologies; air-pollution modelling and control; solid and hazardous waste management; environmental impact assessment (EIA); environmental monitoring /remote sensing; climate-change adaptation; circular economy and resource recovery; environmental regulations and compliance; industrial environmental management; and stronger links with industry through internships and applied projects.

Available curriculum documents / related supporting material	Recommended supporting materials include the existing Environmental Engineering study plan, course specifications and syllabi, programme learning outcomes, laboratory manuals, graduation-project guidelines, internship/field-training documents, assessment methods, environmental legislation and standards, accreditation requirements, and international benchmark curricula from accredited Environmental Engineering programmes

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University of Sulaimani

Proposed Bachelor Programs for WP3 Consideration

Programme 2: GIS and remote sensing

Proposed curriculum for College of Agricultural engineering sciences

Item	Proposed Information
Name of curriculum / study programme	**2. GIS Application**
Department, Faculty & Academic Level	– Natural resources Department – College of Agricultural engineering sciences – Bachelor's Degree (B.Sc.)
Brief justification for selection	Geographic Information Systems (GIS) application transforms real data into critical, actionable spatial intelligence. Today's challenges-ranging from climate change and supply chain disruptions to urban expansion and public health crises—are fundamentally spatial. Traditional data management tools fail to capture the geographic relationships necessary to solve these problems. GIS bridges the gap between theoretical data and real-world execution. It equips students with the exact high-demand technical competencies, such as spatial analysis, digital cartography, and cloud-based database management—that modern industries require.
Main gaps / areas requiring improvement	Traditional GIS software packages (like desktop-based software) feature highly complex user interfaces designed for industry experts, not students. Therefore, Curriculums must prioritize user-friendly, browser-based environments—such as Esri's ArcGIS to minimize technical frustration and focus student on spatial analysis.

Available curriculum documents / related supporting material	Recommended supporting materials include the existing Geographic Information Systems (GIS) study plan, official course outlines (syllabus), and clear Program Learning Outcomes to guide student progress. Students build practical, hands-on skills through laboratory manuals focused on mapping and geospatial analysis. Advanced training is supported by clear graduation-project guidelines field-training rules. And students assessments are requiered based on unversity and official accreditation rules.

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University of Aden

Proposed Bachelor Programs for WP3 Consideration

Programme 1: Executive Master's in Environment and Climate

Proposed ccurriculum for Center of Environmental and Climate Studies

Item	Proposed Information
Name of curriculum / study programme	**1. Executive Master's in Environment and Climate**
Department, Faculty & Academic Level	Center of Environmental and Climate Studies **Master's** (first year)
Brief justification for selection	This course is considered one of the new specializations at the university and it aligns with the MOVE project. Scientific Justification: * Creating a leading model to enhance the methodology of academic teaching. * Developing and spreading culture among community members. * Drawing a clear picture of environmental and climate science and highlighting the importance of studying them due to their connection with many other sciences. * Building the university's capabilities in professional and research development for bachelor's graduates in environmental and climate science and related faculties. Learning Outcomes: Graduates of the program will be able to: • Monitor environmental and climate changes affecting Yemen and find solutions. • Analyze the links between humans and the environment and the underlying motivations behind environmental changes. • Conduct integrated analyses of environmental and climate changes in different ecosystems. • Use acquired skills, integrate and evaluate information to manage natural and urban environments. . Acquire theoretical and practical skills in designing and conducting scientific research.

Main gaps / areas requiring improvement	1 Supporting the center with new curriculum items that fit the changes the world is witnessing regarding the environment and climate change, and that are suitable for the labor market. Here are some examples of the items the center needs to be provided with during curriculum evaluation to work on including them after updating the curricula and the ones you suggest: - Climate change adaptation mechanisms and mitigation plans - Climate governance, international policies, and climate justice - Climate modeling and big data analysis - Environmental economics and climate finance - Urban systems sustainability and environmental resilience in cities - Blue economy 2) Supporting the center through European experts by providing practical terms that can be applied in the field, so that students gain hands-on knowledge and have the ability to find appropriate solutions to face disasters. 3) Supporting and equipping the center to establish a fully integrated environmental and climate lab with academic value, benefiting master's and PhD students from all departments, as well as undergraduates, institutes, centers, and related government facilities. 4) Assisting the center through European experts in evaluating the curriculum in terms of its strengths and weaknesses. 5) Organizing external visits for faculty members and students to European or Arab universities to get a close look at the curricula they teach and benefit from them, as well as the techniques used to apply them in practice. 6) Module overview: The curriculum consists of 15 courses distributed across three semesters, with 15 credit hours per semester. It covers key areas of environmental sciences, including ecology, climate change, natural resource management, environmental pollution, environmental legislation, sustainable development, and disaster management. The curriculum also emphasizes practical and analytical skills through Geographic Information Systems (GIS), remote sensing, environmental impact assessment, research methods, and a final research project. Overall, it aims to develop students' knowledge and skills to address environmental challenges and support sustainable environmental management.

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University of Aden

Proposed Bachelor Programs for WP3 Consideration

Programme 2: Plant Ecology

Proposed curriculum for Faculty of Education

Item	Proposed Information
Name of curriculum / study programme	**2. Plant Ecology**
Department, Faculty & Academic Level	Department: Biology. Faculty of Education, Bachelor's Degree (B.Sc.)
Brief justification for selection	Provides foundational knowledge on plant ecology history, plant interactions, human and animal impacts on flora, and environmental growth factors including climatic, geographic, biotic, and soil parameters.
Main gaps / areas requiring improvement	Missing administrative data, such as the course code/number, specification author, and approval authority/date. o The practical application table is left entirely blank without specified experiments, hours, or learning outcomes. o Section policy fields (attendance, cheating, plagiarism, late assignments) contain unfilled template prompts. o Enrichment references, journals, and electronic source sections are unpopulated.
Available curriculum documents / related supporting material	Course specification document. **Main References**: Plant Ecology (2006) by Dr. Ahmed Muhammad Mujahid and Basics of Plant Ecology (1998) by Dr. Mahmoud Zahran. **Supporting Reference**: Plant Ecology (2002) by Kamal Shaltout.

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Hadhramout University

Proposed Bachelor Programs for WP3 Consideration

Programme 1: Nutrition and Agricultural Technology

Proposed curriculum for Faculty of Environmental Science and Marine Biology

Item	Proposed Information
Name of curriculum / study programme	**1-Nutrition and Agricultural Technology**
Department, Faculty & Academic Level	– Department of Food Science and Technology – Faculty of Environmental Science and Marine Biology – Bachelor's Degree (B.Sc.)
Brief justification for selection	• Qualifying personnel who combine expertise in healthy nutrition with modern agricultural techniques to meet the needs of Hadhramaut Governorate. • Health Sector: Bridges the acute shortage of clinical nutritionists and combats widespread malnutrition disorders. • Relief & Development: Supplies certified specialists for international food security projects (e.g., UNICEF, WFP). • Agricultural Sector: Introduces modern processing tech, enhances local produce (dates, honey), and reduces chronic disease risks. • Scientific Integration: Implements the 'Farm-to-Consumer' concept, reducing the need for local students to pursue specialized degrees abroad. • Bridging Agricultural Technology and Nutrition: The program does not merely focus on agricultural yield volume; it connects how agricultural technology can be leveraged to enhance the nutritional value of crops and improve the quality of produced food • Public Health & Food Security: Combats climate-driven yield risks through precision farming, while tackling diabetes and obesity by designing diets based on local crop chemical composition.

Brief justification for selection	• Qualifying personnel who combine expertise in healthy nutrition with modern agricultural techniques to meet the needs of Hadhramaut Governorate. • Health Sector: Bridges the acute shortage of clinical nutritionists and combats widespread malnutrition disorders. • Relief & Development: Supplies certified specialists for international food security projects (e.g., UNICEF, WFP). • Agricultural Sector: Introduces modern processing tech, enhances local produce (dates, honey), and reduces chronic disease risks. • Scientific Integration: Implements the 'Farm-to-Consumer' concept, reducing the need for local students to pursue specialized degrees abroad. • Bridging Agricultural Technology and Nutrition: The program does not merely focus on agricultural yield volume; it connects how agricultural technology can be leveraged to enhance the nutritional value of crops and improve the quality of produced food • Public Health & Food Security: Combats climate-driven yield risks through precision farming, while tackling diabetes and obesity by designing diets based on local crop chemical composition.
Main gaps / areas requiring improvement	• Laboratory Infrastructure: Need to establish advanced labs integrating nutritional analysis with agricultural biotechnology. • Field Internships and partical : Strengthen formal partnerships with modern agritech farms, food factories, and hospital clinical centers. • Regulatory & Policy Coverage: Expand coverage of GMO regulations, hydroponics standards, food safety laws, and nutrition claims compliance. • Modern Frontiers: Integrate courses on Nutrigenomics (gene-nutrition interaction) and AI-driven dietary/quality management software
Available curriculum documents / related supporting material	To build the final comprehensive program document, the following references should be utilized: • Accreditation Standards: IFT (Institute of Food Technologists) standards and national program accreditation standards for agricultural and health sciences. • International Organization Guidelines: FAO and WHO literature on sustainable food systems and human nutrition. • Training Agreements (MoUs): Proposed Memoranda of Understanding with Food & Drug authorities, modern agritech farms, and food processing facilities. • Approved Study Plan: Structured over 8 semesters covering general university requirements, college requirements, and specialized domain courses (e.g., Food Chemistry, Lifespan Nutrition, Clinical Nutrition, Food Microbiology, Product Development). • Course Specifications: Standardized documents detailing Intended Learning Outcomes (ILOs) mapped to academic benchmarks. • Field Training Manual: Regulations governing student evaluation during summer internships in hospitals, quality control labs, and food plants. • Lab Manuals: Practical manuals and experimental procedures for food chemistry, food analysis, and nutritional status assessment.

Co-funded by the European Union

Hadhramout University

Proposed Bachelor Programs for WP3 Consideration

Programme 2: Environmental Science and Technology

Proposed Curriculum for the Faculty of Environmental Sciences and Marine Biology

Item	Proposed Information
Name of curriculum / study programme	**2. Environmental Science and Technology**
Department, Faculty & Academic Level	– Department of Environmental Science and Technology – Faculty of Environmental Science and Marine Biology – Bachelor's Degree (B.Sc.)
Brief justification for selection	• A strong academic foundation exists in the current program, covering environment, water, pollution, GIS, remote sensing, climate change, impact assessment, and sustainable development, making it feasible to develop rather than establish a new program. • High expected demand for graduates in environmental and agricultural specializations, with 81.6% of participants anticipating increased demand over the next five years. • A clear gap between education and the labor market, with 72.1% perceiving partial alignment or misalignment between current programs and market needs. • The need to strengthen the applied and professional aspects and address the weak practical preparation of new graduates. • Keeping pace with scientific and technological transformation by integrating GIS, remote sensing, data analysis, artificial intelligence, agricultural technology, and smart agriculture. • Responding to Hadhramaut's developmental and environmental priorities by linking the program to water, agriculture, climate change, food security, biodiversity, and local livelihoods. • Offering a multidisciplinary and more employable program that combines environment, sustainable agriculture, water, food, beekeeping and honey, and technology, while preserving the identity of environmental science.

Main gaps / areas requiring improvement	• Weak practical and field training, with a need to increase problem-based learning and the use of real data. • Limited alignment of courses with labor market needs, requiring periodic employer involvement in curriculum development. • The need to strengthen GIS, remote sensing, and data analysis skills and apply them to real-world environmental problems. • Weak integration of modern technologies and artificial intelligence in environmental and agricultural applications. • The need to integrate sustainable agriculture, smart agriculture, and climate-smart production into the program. • The need to develop soil and water management skills through practical applications in water, irrigation, scarcity, and climate adaptation. • Weak employability services and direct exposure to the labor market, requiring internships, field visits, joint projects with companies, and career guidance. • The need to enhance personal and professional skills such as entrepreneurship, project management,
Available curriculum documents / related supporting material	The Bachelor of Environmental Sciences programme at Hadhramout University, offered by the Faculty of Environmental Sciences and Marine Biology, aims to equip students with the scientific knowledge and practical skills needed to understand and address environmental challenges. The four-year programme combines environmental sciences with related disciplines, preparing graduates to work in environmental protection, water and sanitation, oil industry environmental management, environmental awareness, and other related sectors. The programme is taught in Arabic and follows a semester-based, credit-hour system

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