



CAPACITY BUILDING FOR EDUCATION AND APPLIED
RESEARCH IN MEDITERRANEAN UNESCO'S BIOSPHERE RESERVES

MEDITERRANEAN BIOSPHERE RESERVES EDUCATION, RESEARCH & MANAGEMENT AGENDA



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About EduBioMed

The project aims to strengthen, ameliorate and upgrade academic activity at four Moroccan and Lebanese Higher Education Institutions (HEIs) in the context of Mediterranean Biosphere Reserves (BRs), in collaboration and through networking with BRs' stakeholders (citizens, visitors, managers and technicians), public administrations and EU Partners.

Partners:

- [Universitat Autònoma de Barcelona](#), Spain (coordinator)
- [Université d'Aix Marseille](#), France
- [American University of Beirut](#), Lebanon
- [Université Saint-Joseph](#), Lebanon
- [Université Cadi Ayyad](#), Morocco
- [Université Mohammed V de Rabat](#), Morocco
- [MAB France](#), France
- [Association for the Protection of Jabal Moussa \(APJM\)](#), Lebanon
- [UNIMED – Mediterranean Universities Union](#), Italy

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www.edubiomed.eu



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1. Background

1.1 The Edu-BioMed project

This document is published in the frame of Edu-BioMed, an international cooperation project co-funded by the Erasmus+ Capacity Building in Higher Education programme of the European Union during the period 15 November 2018 - 15 November 2021¹.

The project aims to strengthen, ameliorate and upgrade academic activity at four Moroccan and Lebanese Higher Education Institutions (HEIs) in the context of Mediterranean Biosphere Reserves (BRs), in collaboration and through networking with BRs' stakeholders (citizens, visitors, managers and technicians), public administrations and EU Partners.

'BR' is a UNESCO label for territories composing a mosaic of natural protected areas, cultural heritage, human settlements, and land use designations for small-scale, eco-friendly economic activity. The designation falls under the auspices of UNESCO's "Man and Biosphere" (MaB)² program, which aim is to explore solutions for the improvement or relationships between people and their environments on a multidisciplinary scientific basis.

The four beneficiaries of the action are the American University of Beirut (AUB), the Saint Joseph University of Beirut (USJ), the Université Cadi Ayyad of Marrakech (UCA) and the Université Mohammed V of Rabat (UM5). Five other organizations support these HEIs in pursuing such aim: the Universitat Autònoma de Barcelona (UAB, project coordinator), the Aix-Marseille University (AMU), MAB France, UNIMED and the Association for the Protection of Jabal Moussa (APJM).

Please consult the [Project Card](#)³ and the [Project Website](#) for more information.

"Edu-BioMed aim is to strengthen, ameliorate and upgrade academic activity at four Moroccan and Lebanese universities in the context of Mediterranean Biosphere Reserves, in collaboration and through networking with BRs' stakeholders"

1.2. The MedBRs – ERM Agenda

The Edu-BioMed Consortium is made of six HEIs, two NGOs, one association of universities, and involves more than 100 people from five countries to work in six Biosphere Reserves. It is

¹ Project reference code: 598924-EPP-1-2018-1-ES-EPPKA2-CBHE-JP

² <http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/>

³ <https://ec.europa.eu/programmes/erasmus-plus/projects/eplus-project-details/#project/598924-EPP-1-2018-1-ES-EPPKA2-CBHE-JP>

a huge coordination effort to make everyone to collaborate in meeting the project goals. The purpose of the present *Mediterranean Biosphere Reserves Education, Research and Management Agenda* (MedBRs-ERM Agenda) is to establish guidelines, and put Edu-BioMed Partners on the same page for the good progress of second Work Package (WP) of the project: 'WP2 - Development'.

In fact, the MedBRs-ERM Agenda is the main output of the first WP of Edu-BioMed: 'WP1 - Preparation', that took place in first semester of the project (November 2018 to April 2019). It dedicated to:

- Assess the level of knowledge and the education-research capacity in the context of Biosphere Reserves at the Partner HEIs through surveys (Task 1.1);
- Explore the territorial needs and demands by means of focus groups with BR stakeholders (Task 1.2) ;
- Assess the knowledge gaps at the level of BR management, more specifically about the legal framework and governance mechanisms (Task 1.3);

The MedBRs-ERM Agenda is a compendium of guidelines for the proper development of second Work Package of the Edu-BioMed project

Outcomes from WP1 were discussed in a series of workshops that were organized in Bzommar, Lebanon, in proximity of Jabal Moussa BR. The MedBRs-ERM Agenda is the product of such brainstorming sessions, where Partners agreed on all relevant issues to be taken into account

for WP2 actions. The Agenda resumes the mind maps and the relevant discussions among Partners that were produced in Bzommar into a compendium of guidelines.

Furthermore, the MedBRs-ERM Agenda aims to be a document of reference for all those actors involved in Edu-BioMed and in MedBRs-ERM, namely UNESCO, MaB governing bodies and thematic networks, the International Center for the Mediterranean Biosphere Reserves, IUCN, organizations involved in BR management and other HEIs.

1.3. Thematic workshops in Bzommar, Lebanon (2019)

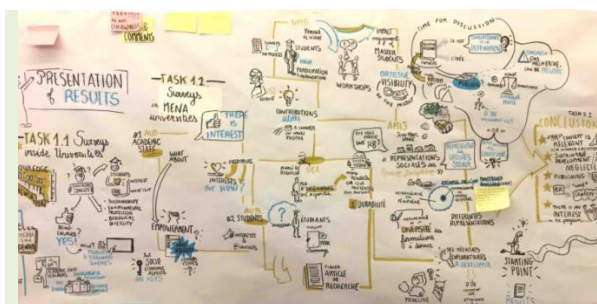
From April 29th to May 1st, 2019, forty professionals from the project Partner organizations gathered in the village of Bzommar, Lebanon, in proximity of Jabal Moussa BRs. Organized by APJM in collaboration with project coordinators (UAB), the meeting was held to discuss the results from WP1, i.e. the first semester of activities in the Edu-BioMed project, and to set the basis of the present MedBRs-ERM Agenda.

The first day, WP1 Task Leaders presented the results of the work already performed in each Task. You can find the presentations at [this link](#).

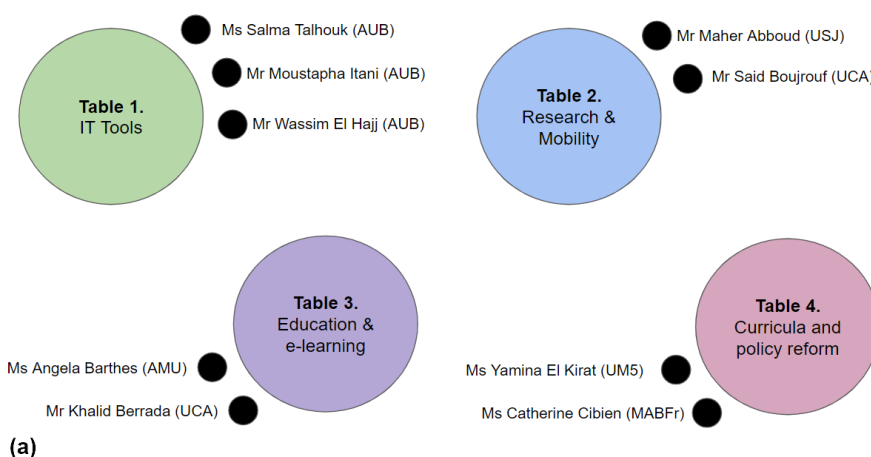
The second day, results from WP1 fed the discussion around four macro-topics constituting the four areas of action within WP2: (i) development of IT tools; (ii) case-study and mobility strategies; (iii) production of education material and e-learning; (iv) curricula developments. A *world café* was organized into four thematic tables, one for each macro area.

A *world café* is a structured conversation process for knowledge sharing in which groups of people discuss a topic at several tables. Participants change tables periodically and are introduced to the previous discussion at their new table by "table hosts", who do not move during the different rounds. At each table, a few questions will facilitate the hosts to lead the discussion. After the first round, all participants (except the hosts) will choose another table. Discussions would continue for other three rounds (20 minutes each) based on the results of the previous sessions. Guests would contribute with the views of the other tables to enrich the conversation. Figure 1 provides a scheme of the just described sessions, while Table 1 to Table 4 provides with the specifics of topics discussed at each table. The main output of the world café sessions were *mind maps* (Figure 2), where all the inputs from discussions were schematized.

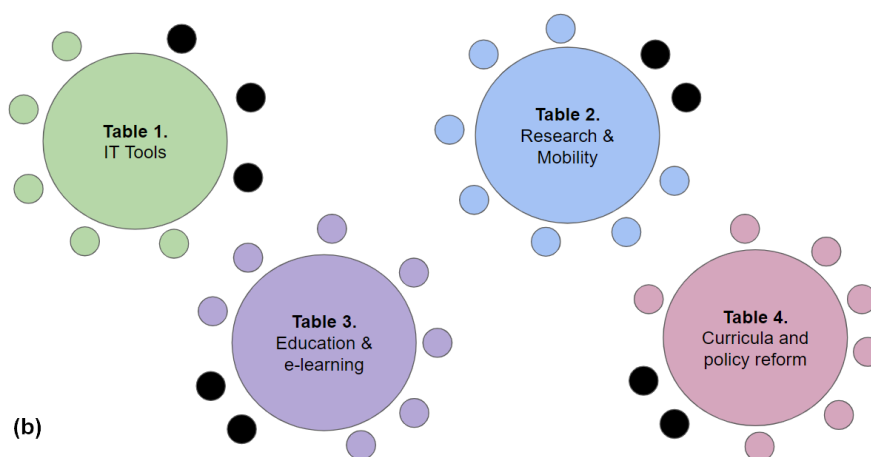
During the third day, the mind maps were translated and organized into the guidelines of the present MedBRs-ERM Agenda, and reported in the following sections of the document.



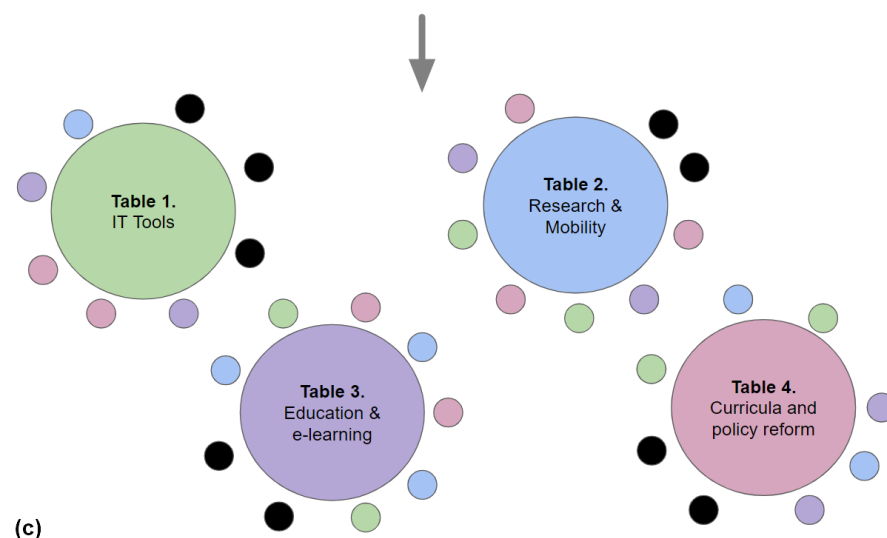
All Bzommar's sessions were graphically recorder by Ms Fanny Didou, a Master student from UAB. You can find her work from those days at [this hyperlink](#).



(a)



(b)



(c)

Figure 1. Scheme of Bzommar's world café. (a) Table hosts; (b) first round; (c) second round

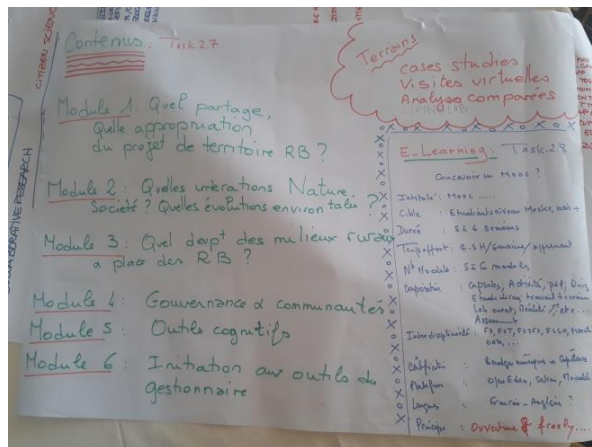


Figure 2. Mind maps from the world café

Table 1. IT Tools. Database for collaborative research (T2.3), citizen science (T2.4)
Bzommar's world café

Table hosts (task leaders): Ms Salma Talhouk & Mr Wassim El Hajj (AUB)

Guiding question: *How do you envision the main features and architecture of the tools?*⁴

Topics:

- Suggestions regarding the architecture of the platforms
 - What existing IT tools we can exploit/on which we can build?
 - Which typology of data do we want to collect and store?
 - Which disciplines we want to include?
 - How to make the different tools to communicate?
 - How to georeference data?
 - Languages of the interface
 - Terms and conditions for fair and responsible data sharing
- Sustainability
 - How to incentivize/promote the use of the tools?
 - Post-project sustainability: how to maintain the platforms?
- Purchase of equipment ... what do we need?
 - Access to databases and clouds
 - Software & hardware
 - High-end PC for big data analysis
 - Servers
 - Insurance, transport & installation costs
 - How to implement shared ownership
- Subcontracting: actual development of the platform



Table 1. Outline of Table 1 at Bzommar's world café

⁴ AUB team produced a survey that was distributed in Bzommar, in order to get an understanding of the EduBioMed consortium needs and expectation regarding the development of the IT tools. Downloadable at: <https://drive.google.com/open?id=1tH5D0s7e4uRwGZ6quO0mGH8aECj4ZJSw>
The Survey was based on a review of already existing collaborative and citizen science research tools and a compilation of preliminary design ideas. You can download the report at this link <https://drive.google.com/drive/u/1/folders/14KklbE2-eyeq4q76PdGRYEOW4917jKko>

Table 2. Case studies and mobility strategies (T2.6)
Bzommar's world café

Table hosts (task leaders): Mr Said Boujrourf (UCA) & Mr Maher Abboud (USJ)

Guiding questions: *What are the main opportunities for research activities in Moroccan and Lebanese Biosphere Reserves? Student and staff mobility: who, how, when?*

Topics:

- Selection of case studies
 - Interdisciplinarity: how to involve actors from different disciplines? (T1.1)
 - where? (different zoning)
 - How to take into account the needs and demands of biosphere reserves? (T1.2)
 - Possibilities of using computer tools (T2.3,4)
 - gender, poverty, marginalization, unemployment and social exclusion, migration, youth
- Student mobility
 - How to promote it?
 - Duration: normalized or variable?
 - Training and internship programmes: opportunities in BRs and universities
 - Thesis work for Master students
 - Research stays for doctoral (and post-doctoral) students
 - Co-supervision
- Purchase of equipment



Table 2. Outline of Table 2 at Bzommar's world café

Table 3. Education material (T2.7) and e-learning (T2.8)
Bzommar's world café

Table hosts (task leaders): Ms Angela Barthes (AMU) & Mr Khalid Berrada (UCA)

Guiding question:

What modules would compose an e-learning MSc in MedBRs? How to produce it?

Topics:

- Education Material
 - Selection of topics for the modules
 - Structure of each module (syllabus, calendar, readings, assessment modalities)
- Production of MOOC
 - How to produce the audio-video material: standards; in-house or fieldwork
 - Synergies with case-study research (Task 2.6): fieldwork, use of drones
 - Purchase of equipment
 - Procedures
 - Sub-contracting
 - Shared ownership
 - Exploiting other platforms (e.g. coursera.org)
 - Target audience
- Sustainability of the platform



Table 3. Outline of Table 3 at Bzommar's world café

Table 4. Curricula development (T2.9) and policy reforms (T2.10)
Bzommar's world café

Table hosts (task leaders): Ms Yamina el Kirat (UM5) & Ms Catherine Cibien (MABFr)

Guiding question:

How to build a Joint International MSc in Mediterranean Biosphere Reserves?

Topics:

- What are the existing Master degrees at each university already going on?
- Architecture of a Joint MSc?
 - Target students
 - Entry requirements
 - Mobility of students
 - International curricular internship opportunities in BRs and universities
 - Fieldworks in Biosphere Reserves
 - Non-academic actors (e.g. BR managers) as lecturers
 - fees
- What are requirements for the recognition of a (Joint) Master degree with
 - national authorities (in each country)?
 - Homologation to Bologna standards (ECTS, duration...)
- Connection between academia and policy



Table 4. Outline of Table 4 at Bzommar's world café

2. Guidelines for Higher Education

2.1. Integrating Biosphere Reserves in higher education

Biosphere Reserves (BRs)⁵ are complex socio-ecological systems where both sustainable human development and environmental protection are promoted. Through the *Man and the Biosphere Programme*⁶, UNESCO institutes BRs as "'Science for Sustainability support sites', special places for testing interdisciplinary approaches to understanding and managing changes and interactions between social and ecological systems, including conflict prevention and management of biodiversity."⁷

Learning about BRs is equivalent thus to learn about matters of sustainability: environmental protection, territorial management, sustainable development. Understanding a BR is to understand issues in socio-ecological studies. Managing a BR requires a particular set of soft and hard skills.

Besides being an object of study, BRs are also tools for learning, 'living laboratories'. That is why learning should be context-based, exploiting the territory as teaching environment.

2.2. Education gaps and opportunities at targeted HEIs

The results from Task 1.1 (see the related Report on the project website) showcase that:

- the BR concept is still poorly known, both among students and academic staff: there is a strong intuition of the ecological function of a BR, while the understanding of BRs as places where human presence is tolerated and sustainable development promoted remains poor.
- Experiential learning (fieldtrips) is poorly exploited as tool for academic activity. It is needed to incentivize teaching inside BRs.
- Curricula development and teaching upgrading should put particular focus on concepts like *cultural diversity, human health, global change, political ecology and governance*. Students both relate these concepts to BRs and express interest around such areas of knowledge

⁵ There are almost 700 BRs around the world (link to the map <https://unesdoc.unesco.org/ark:/48223/pf0000259695>), and almost 70 in the Mediterranean area (reference: <http://www.unescomedcenter.org/>)

⁶ <http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/>

⁷ <http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/biosphere-reserves/>

- There is a need to develop expertise in some poorly worked concepts: *industrial ecology, complexity, empowerment, political ecology, forest management, commons, socioecological heritage, human health*.
- Inside Edu-BioMed HEIs there is the necessary expertise around the just mentioned concepts, as interviewed professors state that they work in such fields and they are willing to engage in the project.

2.3. Cross-cutting competencies for learners

Developing curricula requires the establishment of clear learning objectives. After Bzommar's workshops, it emerged that the future design of educational material and programmes in the field of Biosphere Reserve education should underpin on a set of cross-cutting competencies that learners should acquire in the field.

Following the directives of UNESCO⁸, learners in the sustainability studies field should be equipped with the competencies listed in Figure 3.

We integrate the above list of soft skills with some competencies more that are Biosphere Reserves studies-specific (Figure 4). These are those with which a person dealing with BR management should be equipped.



Jabal Moussa BR.
Credits: Ms Fanny Didou
[@sketchingthemove](https://www.instagram.com/sketchingthemove)

⁸ UNESCO, 2017. *Education for Sustainable Development Goals – Learning Objectives*. Paris. Available at <https://unesdoc.unesco.org/ark:/48223/pf0000247444>

Figure 3. Cross-cutting competencies in sustainability studies

Systems thinking competency: the abilities to recognize and understand relationships; to analyse complex systems; to think of how systems are embedded within different domains and different scales; and to deal with uncertainty.

Anticipatory competency: the abilities to understand and evaluate multiple futures – possible, probable and desirable; to create one's own visions for the future; to apply the precautionary principle; to assess the consequences of actions; and to deal with risks and changes.

Normative competency: the abilities to understand and reflect on the norms and values that underlie one's actions; and to negotiate sustainability values, principles, goals, and targets, in a context of conflicts of interests and trade-offs, uncertain knowledge and contradictions.

Strategic competency: the abilities to collectively develop and implement innovative actions that further sustainability at the local level and further afield.

Collaboration competency: the abilities to learn from others; to understand and respect the needs, perspectives and actions of others (empathy); to understand, relate to and be sensitive to others (empathic leadership); to deal with conflicts in a group; and to facilitate collaborative and participatory problem solving.

Critical thinking competency: the ability to question norms, practices and opinions; to reflect on own one's values, perceptions and actions; and to take a position in the sustainability discourse.

Self-awareness competency: the ability to reflect on one's own role in the local community and (global) society; to continually evaluate and further motivate one's actions; and to deal with one's feelings and desires.

Integrated problem-solving competency: the overarching ability to apply different problem solving frameworks to complex sustainability problems and develop viable, inclusive and equitable solution options that promote sustainable development, integrating the above mentioned competences

Figure 4. Cross-cutting competencies in BR studies

Nature conservation competency: the abilities to understand a protected area; to map and protect its bio-geo-cultural diversity; to understand the institutional and legal framework in which the PA is established, and the stakeholder networks and relations that shape its governance structure and mechanisms.

Socio-ecological studies competency: the abilities to understand a landscape as a complex dynamic system where social, economic and ecological factors interact and shape the environment in a global change scenario.

Environmental management competency: the ability to design and implement a project of territory that is ecologically-economically-socially sustainable, involving local stakeholders in the decision making process.

Sustainability education competency: the ability to teach basic concepts about sustainability and global change related matters; to raise awareness about the factors that lead to socio-environmental degradation or restoration; to educate to the above mentioned competencies.

Interdisciplinary competency: the ability to integrate information from different sources and disciplines into multifaceted arguments that take into account the complexity of socio-ecological issues

Intercultural competency: the ability of cognitively, affectively and behaviourally communicate and peacefully interact with people from different culture.

GIS competency: the ability to understand geographic information systems; acquire and manage geo-referenced data; to make use of GIS technology

Citizen science competency: the ability to make use of citizen science tools; to acquire dataset from citizens

Project management competency: the ability to design, implement, assess and monitor project and programmes; to efficiently manage time; to positively manage and solve conflicts; to promote communication between different stakeholders.

Entrepreneurship competency: the ability to seek and identify opportunities for action; to propose and implement solutions to problems

2.4. Guidelines for curricula developments

2.4.1. Baseline MSc programmes

Bzommar's workshops allowed the identification of the existing MSc programmes at Edu-BioMed HEIs that can constitute the baseline of the curricula improvements that the project aims to achieve (Tasks 2.9). Here is the list of such Masters.

P1 – Universitat Autònoma de Barcelona

[Master Degree in Interdisciplinary Studies in Environmental, Economic and Social Sustainability](#)

P3 – American University of Beirut

[Master Degree Program in Environmental Sciences](#)

P4 – Université Saint Joseph Beirut

[Master Sciences et Gestion de l'Environnement](#)

P5 – Université Cadi Ayyad Marrakech

[Master Gouvernance des projets solidaires dans les territoires fragiles au Maroc et en Afrique sub-saharienne](#)

P6 – Université Mohammed V Rabat

[Master GouvAtdevGer - parcours 2 "Tourisme, patrimoine, gouvernance locale te développement des arrière-pays" TOURAP.](#)

Besides the above mentioned programmes, there is another one that Edu-BioMed partners agreed to take as reference for the curricula development options. The [Master Man and Biosphere](#) at *Université Paul Sabatier Toulouse III* is co-directed by Ms Catherine Cibien, co-ordinator of Edu-BioMed at MAB France. The degree aims to train learners in the context of BR research and management, right as the Edu-BioMed project does, too.

2.4.2. Guidelines for the design of a Joint Master degree

In the spirit of the Erasmus+ program, the Joint Master degree that is to be designed within Edu-BioMed scope should respond to European Commission policies and strategies. Therefore, the following documents are taken as reference:

- [The Convention on the Recognition of Qualifications concerning Higher Education in the European Region](#) (ETS 165, Lisbon Recognition Convention)
- Nuffic 2012. [European Area of Recognition Manual](#) – Practical Guidelines for fair recognition of qualifications

- The Committee Of The Convention On The Recognition Of Qualifications Concerning Higher Education In The European Region, 2016. [REVISED RECOMMENDATION ON THE RECOGNITION OF JOINT DEGREES](#). Strasbourg/Paris
- Aerden, A. and J. Lokhoff, 2013. [Framework for Fair Recognition of Joint Degrees](#). European Consortium for the Accreditation in Higher Education. ISBN 978-94-90815-05-09.
- ENQUA, 2014. [European Approach for Quality Assurance of Joint Programmes](#)
- European Commission. [Erasmus Mundus Joint Master Degrees](#). Erasmus+ Portal ; and the related sections in the [Erasmus+ Guide](#) (pp.88-97 & pp. 293-295)
- European Union, 2017. [Overview of Higher Education System – Morocco](#).
- European Union, 2017. [Overview of Higher Education System – Lebanon](#).

Aiming at building a programme of quality, the recommendations for the design of an Erasmus Mundus Joint Master Degree (EMJMD) are taken as reference. Particularly, the main objective within Edu-BioMed curricula developments (Task 2.9) will be the drafting of a **Cooperation Agreement** following the [Guidelines for EMJMD Consortium Agreements](#) and the [European Approach for Quality Assurance of Joint Programmes](#) provisions.

2.4.3. E-learning

Among the various activities in Edu-BioMed, there is the design and development of an e-learning platform for teaching about Biosphere Reserves-related topics (Task 2.8), starting from the production of educational material (Task 2.7).

Edu-BioMed partners agreed in Bzommar to develop a Massive Online Open Course (MOOC) on Mediterranean Biosphere Reserves, made of 4-5 modules that would respond to the learning objectives set in the previous paragraphs.

The course will be uploaded to existing online platform (i.e. Coursera.org)



Shouf BR. Credits: Ms Fanny Didou [@sketchingthemove](#)

3. Guidelines for Applied Research

3.1. Priority research areas

From the working tables in Bzommar, four priority research areas and related sub-topics/areas have emerged as key for the future development of higher education and research in Med-BRs, having interdisciplinarity and collaborative as general character and socio-ecology as crosscutting perspective. These four areas are:

RESEARCH AREA 1: Landscape (links nature-society)

- Example of possible subtopics: *people's perceptions of the landscape; interpretation of landscapes; heritage; land use and land cover changes; urbanization; agrarian system; global change; landscape design; physical substratum-human activities relations; historical interaction between nature and culture*

RESEARCH AREA 2: Biological and geological diversity

- Example of possible subtopics: *biodiversity knowledge and conservation; geological heritage; biodiversity as global change indicator; bio-/geodiversity valorisation; sentinel ecosystems; local genetic resources; adaptive management*

RESEARCH AREA 3: Socio-economic development

- Example of possible subtopics: *ecological economics; circular economy; multicriteria analysis; entrepreneurship; quality management; local products: valorisation and commercialization; value chains; agroecology; forestry; ecotourism; natural resources management*

RESEARCH AREA 4: Governance

- Example of possible subtopics: *stakeholders' mapping; policy analysis; conflicts of interests; conflict mediation; project management; leadership; decision making; top-down vs. bottom-up approaches to governance; political ecology; organizations' sociology;*

3.2. Case studies

The above mentioned research areas should be explored through a meaningful set of case-studies. Table 5 contains a list of priority research topics to be addressed in the four BRs⁹ that constitute the object of study, and that came up after the discussion of the outcomes from Task 1.2.

⁹ Intercontinental BR of Mediterranean (RBIM, Morocco-Spain); Jabal Moussa BR (JMBR, Lebanon); Arganaraie BR (RBA, Morocco); Shouf BR (SBR, Lebanon).

| Field | Research area | Research topic | Biosphere Reserve | | | |
|------------------------------|---------------|--|-------------------|-----|-----|------|
| | | | JMBR | SBR | RBA | RIBM |
| INTERDISCIPLINARY | 1,2,3,4 | Systematic, extensive review of the existing literature | | | | |
| | 1,3 | Integral mapping of land use and land cover changes | | | | |
| | 1,2,3,4 | Systematic catalogue of traditional and local knowledge(s) | | | | |
| | 1,2,3,4 | Applied learning exercise: drafting of the BR periodical review to UNESCO | | | | |
| | 4 | Creation of an IT tool for e-governance | | | | |
| ENVIRONMENTAL SCIENCES | 2 | Integral mapping of bio-geodiversity | | | | |
| | 1,2,3 | Assessment of environmental degradation stressors | | | | |
| | 3,4 | Forest fires action and management plan development | | | | |
| SOCIO-ECONOMIC SCIENCES | 3,4 | Stakeholders mapping | | | | |
| | 3 | Regional mapping of jobs and business | | | | |
| | 3,4 | Study of conflicts of interest related to land use and property rights | | | | |
| | 3 | Development of platforms for e-commerce | | | | |
| | 3 | Design of an eco-labeling at the level of BR (products and services) | | | | |
| | 3 | Study of constraints and synergies between actors in the BR market | | | | |
| | 3 | Explore roots of unemployment and under-employment | | | | |
| | 4 | Spatial inequalities between urban and rural, coastal and inland, and disparities between provinces and municipalities | | | | |
| ENGINEERING and ARCHITECTURE | 3 | The role of women in the local economy | | | | |
| | 3 | Feasibility assessment for the implementation of a composting system for organic waste | | | | |
| | 3 | Design of agricultural good-practices | | | | |
| | 3 | Design of reinforcement of existing road infrastructure | | | | |
| | 3 | Research on solar drying techniques in collaboration with fruit farmers | | | | |
| LAW | 1,2 | Production of a high-resolution 3D mockup of the BR | | | | |
| | 4 | Development of enforcement legislation | | | | |
| | 1,2,3,4 | Design of ad-hoc environmental policies | | | | |

Table 5. Priorities case studies. The acronyms for the Biosphere Reserve correspond to: JMBR= Jabal Moussa, Lebanon; SBR=Shouf, Lebanon; RBA= Arganaraie, Morocco; RIBM= Intercontinental BR of the Mediterranean, Morocco-Spain

The list is not-exhaustive, and should be updated over the course of the project, in collaboration between HEIs and BR management bodies (see the paragraph ')

3.5. Interface academies-BRs')

3.3. Mobility schemes

A consistent budget of Edu-BioMed is dedicated to the mobility of learners and HEIs staff. Each beneficiary organization is responsible for the design of their mobility strategy. Mobility schemes can target both Master and PhD students and academic staff (professors, researchers) from the four Moroccan and Lebanese HEIs, and should address the project aims and specific objectives that are specified in the Detailed Project Description. The budget can fund:

- Field trips to BRs;
- Training: seminars; summer/winter schools; courses; conferences;
- Short term research and study stays;
- Internship schemes private and public organizations;
- Development of case studies in BRs;
- Production of educational material;
- Project management meetings;

Given the complementarity in terms of expertise of the Lebanese and Moroccan teams (with Lebanese staff more specialized in natural sciences, while Moroccans in social sciences¹⁰) mobility between the two countries is strongly incentivized.

The contact with and so the involvement of other professionals inside the four HEIs and that are not listed in paragraph 3.5 is also strongly incentivized.

3.4. Equipment

A (non-exhaustive) list of possible items to be purchased within the project scope has been discussed in Bzommar's workshops. You can find the list at this link:

<https://drive.google.com/file/d/1gqU3akFV2zp1OixXljsCC1f1M6cZEnyH/view?usp=sharing>

3.5. Interface academies-BRs

¹⁰ See curricula of the various Edu-BioMed Partners in the Detailed Project Description

https://drive.google.com/open?id=16I7_T37OANFTpOXL8VlwNROCmfd_B2o

From WP1 and Bzommar's workshops outcomes, it emerged the need of monitoring mechanisms of BR reality over time. The case studies presented in the previous paragraph are a non-exhaustive list that needs to be updated in the years to come. If academies are to act as intermediaries between public institutions and civil society organizations in BR management, or play as observatory of need and demands of local stakeholders, they need communication channels with local key-actors.

Works in WP1 enabled the identification of contact persons that could constitute the interface between actors from the HEIs and the BRs. Communication with BRs should be intermediated through the following people:

Jabal Moussa BR
(Lebanon)

Mr Pierre Doumet
Association for the Protection of Jabal Moussa
pierre.doumet@jabalmoussa.org

Shouf BR (Lebanon)

Mr Nizar Hani
Al Shouf Cedar Society
nizar@shoufcedar.org

Arganaraie BR
(Morocco)

Mr Abdelaziz Afkir
Direction Régionale des Eaux et Forêts et de la Lutte Contre la Désertification
afkaziz3@gmail.com

Mr Mohammed Bachri
Agence Nationale pour le Développement des Zones Oasiennes et de l'Arganier
bachri.andzoa@gmail.com

Intercontinental BR of
Mediterranean
(Morocco-Spain)

Mr Mchich Derak (Morocco) mchich78@hotmail.com
Ms Milagros Perez Villalba (Junta de Andalucía)
milagros.perez.villalba@juntadeandalucia.es

4. Guidelines for Mediterranean Biosphere Reserve Management

The importance to create bridges between BR management and academic activity has emerged as key for a sustainable management of the territories:

- **Decision-making should base on scientific evidence.** BR managers should rely on science to design their territorial projects. The set of case-studies that Edu-BioMed aims at implement will provide the basis for the design of management plans. HEIs can exploit the results of scientific research to advise managers, administrators and local communities on risks, threats and opportunities in the BRs

- **BR management should inform educational programmes.** BR managers should be involved as teaching actors themselves. Edu-BioMed could finance field-trips and internships to close the gap between education and management.

BR management should inform applied research. As already stated in the previous paragraphs

- 3.5. Interface academies-BRs', the set of case studies in Table 5 should be periodically updated in collaboration with BR managers.