Interreg
Italy – Croatia

Co-funded by the European Union

ITHR0200448

BIO-BASED

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A - Project identification

A.1 Project identification

Project id (automatically created)	ITHR0200448
Name of the lead partner organisation	Università di Foggia
Name of the lead partner organisation in English	University of Foggia
Project title	Development support of blue biorefinery in the Adriatic Sea
Project acronym	BIO-BASED
Programme priority	Sustainable growth in the blue economy
Specific objective	1.2: Developing skills for smart specialisation, industrial transition and entrepreneurship
Project duration in months	30

A.2 Project summary

Please give a short overview of the project and describe:

- the common challenge of the programme area you are jointly tackling in your project;
- the overall objective of the project and the expected change your project will make to the current situation;
- the main outputs you will produce and those who will benefit from them;
- the approach you plan to take and why a cross-border/transnational/inter-regional approach is needed;
- what is new/original about the project.

The Blue Bioeconomy, as a part of the overall EU Bioeconomy Strategy and Circular Economy Package, offers great potential for the sustainable use of underexploited resources and connects, directly or indirectly, several sectors, (e.g. fisheries, aquaculture, local development, etc.). However, the links between ocean health, impacts on resources and blue bioeconomy sectors still represent one of the knowledge gaps to be overcome to reach “a sustainably harvested & productive ocean” goal, as recognized by the UN-Decade of Ocean Science for Sustainable Development. In line with these evidences, within the Adriatic context, BIO-BASED project aims at establishing a R&D scheme for strengthening Italy-Croatia’s position in the blue bioeconomy, through the transfer of the know-how from researchers to producers in a specific fields:

- Seaweeds production in Integrated Multi Trophic Aquaculture plants (IMTA), to mitigate the environmental impacts and to introduce the diversification and innovation in aquaculture production;
- Valorisation of seaweeds and fisheries/aquaculture by-products with a Biorefinery Approach;
- Production of high value compounds, functional feeds for aquaculture.

Moreover, the implementation of an action plan to valorize marine biomass and aquaculture side-streams generated in IMTA plants, to bring the achieved bio-based products and services to the market, will be the main target of BIO-BASED project. To reach this results it is strategic to involve the SMEs to test in the identified pilot sites (Gargano and Chioggia in Italy, and Mali Ston in Croatia) of this approach in different blue sectors (e.g. aquaculture, fisheries, seafood processing) as a potential key players able to foster and develop tools for the implementation of actions targeting human resources. The activities aims also to train a new generation of “sea farmers” and blue-biotechnologists as recommended by the UN-Decade of Ocean Science for Sustainable Development.

A.3 Project budget overview

Programme funding			Contribution					Total project budget
Funding source	Funding amount	Co-financing rate (%)	Automatic public contribution	Other public contribution	Total public contribution	Private contribution	Total contribution	
ERDF	1.008.197,00	80,00 %	88.116,07	163.933,19	252.049,26	0,00	252.049,26	1.260.246,26
Total EU funds	1.008.197,00	80,00 %	88.116,07	163.933,19	252.049,26	0,00	252.049,26	1.260.246,26
Total project budget	1.008.197,00	80,00 %	88.116,07	163.933,19	252.049,26	0,00	252.049,26	1.260.246,26

A.4 Project outputs and result overview

Programme Output Indicator	Aggregated value per Programme output indicator	Measurement Unit	Output	Output Title	Output target value	Programme result indicator	Baseline	Result indicator target value	Measurement unit
Organisations cooperating across borders	30,00	organisations	Output 2.1	Strengthened innovation capacities of SMEs, especially in Blue economy domains	5,00				
			Output 3.2	Adoption of the Memorandum of Understanding for the implementation of the Action Plan jointly developed	25,00				
Participations in joint actions across borders	15,00	participations	Output 1.1	Test on the potential of macroalgae in seaweed production through IMTA plants	15,00				
Enterprises with non-financial support	60,00	enterprises	Output 3.1	Transfer to SMEs the knowledge and tools developed	60,00				

Programme Output Indicator	Aggregated value per Programme output indicator	Measurement Unit	Output	Output Title	Output target value	Programme result indicator	Baseline	Result indicator target value	Measurement unit
						Participations in joint actions across borders after project completion	0,00	5,00	participations
						Organisations cooperating across borders after project completion	0,00	25,00	organisations

B - Project partners

Partners overview

Number	Status	Name of the organisation in english	Country	Organisation abbreviation	Partner role	Associated organisations	Partner total eligible budget
1	Active	University of Foggia	Italia (IT)	UNIFG	LP		373.840,00
2	Active	National Research Council	Italia (IT)	CNR_IRBIM	PP		271.000,34
3	Active	Mediterranean Aquaculture Association	Italia (IT)	AMA	PP		169.580,00
4	Active	University of Dubrovnik	Hrvatska (HR)	UNIDU	PP		263.100,00
5	Active	Center for Entrepreneurship	Hrvatska (HR)	CZP	PP		182.725,92

B.1 Lead partner	
Partner number	1
Partner role	LP
Name of the organisation in original language	Università di Foggia
Name of the organisation in english	University of Foggia
Organisation abbreviation	UNIFG
Department / unit / division	DAFNE - Department of Agriculture, Food, Natural resource and Engineering
Partner main address	
Country	Italia (IT)
NUTS 2	Puglia (ITF4)
NUTS 3	Foggia (ITF46)
Street, House number, Postal code, City	Via Gramsci 89 71122 Foggia
Homepage	www.unifg.it
Address of department / unit / division (if applicable)	
Country	Italia (IT)
NUTS 2	Puglia (ITF4)
NUTS 3	Foggia (ITF46)
Street, House number, Postal code, City	Via Napoli 25 71121 Foggia
Legal and financial information	
Type of partner	Higher education and research organisations
Subtype of partner	
Legal status	Public
Sector of activity at NACE group level	P.85.42
VAT number (if applicable)	03016180717
Is your organisation entitled to recover VAT based on national legislation for the activities implemented in the project?	No

Legal and financial information	
Tax number	94045260711
PEC address	protocollo@cert.unifg.it
PIC (from EC Participant Register)	884993663

Contact	
Legal representative	Mrs. Maddalena Lucia
Contact person	Mr. Matteo Francavilla
Email	matteo.francavilla@unifg.it
Telephone no.	+393403927680

Motivation

Which of the organisation's thematic competences and experiences are relevant for the project?

The University of Foggia (UNIFG) is a young university formally established on August 5th, 1999. It is made of seven Departments (Agricultural Sciences, Food, Natural Resources and Engineering; Economics; Management and Territory Economics; Law; Humanities Studies; Medical and Surgical Sciences; Clinical and Experimental Medicine) and provides undergraduate and graduate degree courses, master courses, research doctorates, and specialization schools. The academic community is currently composed of approximately 416 researchers and professors. The Department of Agriculture, Food, Natural Resources and Engineering (DAFNE), recently qualified as “National Excellence Department” by Ministry of University and Research (MIUR), promotes excellence in research and supports innovation in technology, favoring knowledge transfer in tune with the international, national and regional economic system. The STAR*Facility Centre is a technological hub of DAFNE Department specialized on biomass conversion (including also marine biomass) into valuable compounds, biomaterials, fine-chemicals and renewable energy through a biorefinery approach. Particular emphasis is addressed on Green Chemistry principles to be applied along the whole biorefinery process. Advanced analytical equipments and conventional and unconventional biorefinery technologies are available there. Moreover, different scientific disciplines are running to form a larger research unit. Strong links of scientific cooperation are considered more appropriate to the needs of a complex research activity, with wide-ranging connections in technological, biological, environmental, and socio-economic aspects.
The main thematic competences and experiences of the UNIFG which will be relevant for the project include “development and testing of green biorefinery technologies/process for the conversion of co-products (seaweeds) and by-products (e.g marine biomass such as processing waste etc.) into products and compounds of commercial value; biochemical (microbial) biomass conversion; safety and quality assessment of aquaculture production (e.g. mussels, oysters, etc.); sustainable aquaculture systems, specifically the development of Integrated Multitrophic Aquaculture Systems (IMTA); seaweed cultivation and marine bioremediation; environmental monitoring; economic assessment and market potentials of biorefinery schemes.

What is the role (contribution and main activities) of your organisation in the project?

Motivation

UNIFG will coordinate the BIO-BASED project and, specifically, will contribute to analyzing the characteristics of the production systems already present in the Adriatic area in order to identify the aquaculture plant where to test IMTA and transfer the blue biorefinery model (Act 1.1), capitalizing on the experience achieved in the context of Mol.Mul.SOS project (Sustainable Multritrophic Mussel Culture), a FEAMP project funded by Puglia Region and led by UNIFG.
UNIFG will contribute to selecting commercially valuable macroalgae adaptable to identified areas (Act 1.2) and transferring and setting up seaweed production systems to enterprises involved in mussel /oysters-based production, generating a switch from conventional aquaculture to IMTA (Act 1.3), capitalizing the results achieved as Partner of B-Blue Project – Interreg Med 2014-2020.
UNIFG will lead Activity 2.1 aimed at identifying green technologies for converting co-products (seaweeds) and by-products (e.g mussel shell, processing waste etc.) into new classes of compounds and products of commercial value, capitalizing the experience and results achieved by UNIFG in the sector of Biorefinery and Green Chemistry trough EU Projects as well as the Up-Running funded by the Horizon Programme, the national projects, as AGRITECH National Centre in the frame of the PNRR, and the regional project RAMBIO.
UNIFG will contribute to the development and analysis of a technical and economic model which could fill the gap between experimental activity and the industrialization of the process in support of the key potential users identified in the Adriatic area (Act. 2.2).
Finally, events to create a network through the involvement of producers in the Croatian and Italian area, and living lab with the involvement of key sector stakeholders in the project proposal's operational area will be organized also considering the output of the project INVESTINFISH funded by the Interreg Programme Italy-Croatia 2014/2020.

If applicable, describe the organisation's experience in participating in and/or managing EU co-financed projects or other international projects.

Among the most relevant project that the University of Foggia is running, and carried out in the past, there are different research projects at the international level. Under the H2020 Programme: the project “uP_running” (Take-off for sustainable supply of woody biomass from agrarian pruning and plantation removal); B_Blue Project, as Partner, (Building the Blue Biotechnology Community in the Mediterranean, INTERREG MED 2014 – 2020); Corene Network (Developing EU agricultural advisory network on consumer-producer chains); the project SKIN (Short supply chain knowledge and innovation network). Under the 7th Framework Programme: the project I.R.F. “Improve the Research activities of Foggia university by an action plan aimed to upgrade and reinforce its RTD potential”; in the field of agro energies, the project STAR-AgroEnergy (“Scientific & Technological advancement in research on agro-energy: an integrated approach to renewable energy generation according to sustainability criteria”); in the field of Energy, the project SUSTOIL “Developing advanced Biorefinery schemes for integration into existing oil production plants”; in the field of food quality and safety, the project QUAFETY (“Comprehensive approach to enhance quality and safety of ready to eat fresh product”), and the project BIAMFOOD “Controlling Biogenic Amines in Traditional Food Fermentation in Regional Europe”; in the field of health, the projects PHARMA COG (“Prediction of cognitive properties of new drug candidates for neorogenerative diseases in early clinical development”) and DECIDE (“Diagnostic Enhancement of Confidence by International Distributed Environment in neurology; Cost Action FP 1603 LIGNOVAL, WP lerder (Valorisation of lignocellulosic biomass side streams for sustainable production of chemicals, materials & fuels using low environmental impact technologies); Cost Action OC 2020-1 PIMENTO (Promoting Innovation of Fermented foods). In addition, 13 research projects at the regional level and 20 research projects at the national level are currently running at the University of Foggia.

Co-financing		
Source	**Amount**	**Percentage**
ERDF	299.072,00	80,00 %
Partner contribution	74.768,00	20,00 %
Partner total eligible budget	373.840,00	100,00 %

Origin of partner contribution			
Source of contribution	**Legal status of contribution**	**Amount**	**% of total partner budget**
UNIFG	Public	0,00	0,00 %
FdR Fondo di Rotazione	Public	74.768,00	20,00 %

Total		
Sub-total public contribution	74.768,00	20,00 %
Sub-total automatic public contribution	0,00	0,00 %
Sub-total private contribution	0,00	0,00 %
Total	74.768,00	20,00 %

State Aid		
State aid criteria self-check		
Criterium I: Is the partner involved in economic activities through the project?		
1. Will the project applicant implement activities and/or offer goods/services for which a market exists?	No	For this partner no state aid are foreseen for this project proposal
2. Are there activities/goods/services that could have been undertaken by an operator with the view to making profit (even if this is not the applicant's intention)?	No	For this partner no state aid are foreseen for this project proposal
Criterium II: Does the partner receive an undue advantage in the framework of the project?		
1. Does the project applicant plan to carry out the economic activities on its own i.e. not to select an external service provider via public procurement procedures for example?	No	For this partner no state aid are foreseen for this project proposal
2. Will the project applicant, any other operator not included in the project as a project partner	No	For this partner no state aid are foreseen for this project proposal

Criterium II: Does the partner receive an undue advantage in the framework of the project?	
or the target audience gain any benefits from its project economic activities, not received in the normal course of business (i.e. not received in the absence of funding granted through the project)?	
Result of State aid criteria self-check:	No risk of state aid
State aid relevant activities	
GBER scheme / de minimis	

B.1 Project Partner 2	
Partner number	2
Partner role	PP
Name of the organisation in original language	Consiglio Nazionale delle Ricerche
Name of the organisation in english	National Research Council
Organisation abbreviation	CNR_IRBIM
Department / unit / division	Institute for Biological Resources and Marine Biotechnologies (IRBIM)
Partner main address	
Country	Italia (IT)
NUTS 2	Lazio (ITI4)
NUTS 3	Roma (ITI43)
Street, House number, Postal code, City	Piazzale Aldo Moro 7 00185 Roma
Homepage	www.cnr.it
Address of department / unit / division (if applicable)	
Country	Italia (IT)
NUTS 2	Marche (ITI3)
NUTS 3	Ancona (ITI32)
Street, House number, Postal code, City	Largo Fiera della pesca 2 60125 Ancona
Legal and financial information	
Type of partner	Higher education and research organisations
Subtype of partner	
Legal status	Public
Sector of activity at NACE group level	M.72.1
VAT number (if applicable)	02118311006
Is your organisation entitled to recover VAT based on national legislation for the activities implemented in the project?	No

Legal and financial information	
Tax number	80054330586
PEC address	protocollo.irbim@pec.cnr.it
PIC (from EC Participant Register)	999979500

Contact	
Legal representative	Mr. Gian Marco Luna
Contact person	Mrs. Grazia Marina Quero
Email	grazia.quero@irbim.cnr.it
Telephone no.	+390712078261

Motivation

Which of the organisation's thematic competences and experiences are relevant for the project?

The National Research Council (CNR) is the largest research public body of Italy. It is structured in 7 Departments including more than 100 Institutes distributed all over Italy, of which the Institute for Marine Biological Resources and Biotechnology (IRBIM) is involved in this project with its office of Ancona. The Institute was founded in 2018 and consists of a staff of about 180 people, bringing together scientists and young researchers in training in its offices distributed in 3 Italian regions (Sicily, Marche and Puglia). The main research activities of the Institute relevant for the project span from “smart, circular and sustainable aquaculture, specifically the development of Integrated Multitrophic Aquaculture Systems (IMTA), the testing of innovative and eco-sustainable feeds, the study of the microbiome of farmed fish and the interactions between aquaculture activities and the surrounding ecosystem” to the “study and exploitation of marine microorganisms for biotechnologies applications and bio-prospecting purposes, also for their applications in blue-bioeconomy value chains (i.e. the study of microbial communities associated with polluted environments, environmental recovery and marine depollution, biomonitoring and bioremediation, biosensing for the monitoring of specific compounds, etc.)”. Moreover, CNR IRBIM is part of the National Biodiversity Future Center (NBFC), recently launched within the National Recovery and Resilience Plan as part of the Next Generation EU programme, within which it coordinates Italian research bodies on development of innovative ecosustainable marine biotechnologies. Finally, it is the coordinator of the BlueMissionMed Project (HORIZON-MISS-2021-OCEAN-03-02) which goal is to set-up the interactive and digitalized multi-actors ecosystem, sc. MED Lighthouse, for offering to all MED Countries/Regions/stakeholders the knowledge and tools for reducing pollution of the MED hydrosphere.

What is the role (contribution and main activities) of your organisation in the project?

CNR IRBIM will bring into the project know how and networks, both at national and international level, specifically working on blue biotechnology (BBt). Among them, it should be mentioned the Italian Blue Biotechnology Hub (BBH Italy) developed within B_Blue Project (INTERREG MED), which gathers together national key actors in the field according to a quintuple helix approach: the BBH Italy included a Living Lab dedicated to the co-design, co-implementation, upscaling and transferring of BBt solutions which can be capitalized in the project (act. 3.1). It will also provide its analysis of national/EU regulations on BBt in aquaculture sector and, specifically, the cultivation of algae as well the

Motivation

valorization of by-products: by addressing burdens for the exploitation of marine biological resources, such analysis can support the cross-border capacity building process (act. 3.1) and the development of the action plan foreseen by Act. 2.2 as well as the deployment of Act 1.1, as far as the know-how on the procedures for state property concessions, space planning and identification of Allocated Marine Zones for Aquaculture (AZA) will be used for identifying the production systems to transfer the project model. As for this last aspect, CNR will bring its operative Framework for IMTA environmental sustainability evaluation suggesting a package of operations to be applied in order to assess the sustainability of such systems. Finally, as for the uptake of the project results, CNR will (1) integrate the recommendations, developed by the BBH Italy, for the integration of RIS and other regional programmes with specific interventions dedicated to BBt; (2) introduce them into the NBFC Science Gateway, a national platform for joint and multidisciplinary research, translational activities and transformative innovation (3) and the Mission Oceans and Waters Lighthouses, in particular, the BANOS Demonstrator which is focused on Sustainable, carbon-neutral and circular Blue economy.

If applicable, describe the organisation's experience in participating in and/or managing EU co-financed projects or other international projects.

CNR-IRBIM coordinated and/or participated to more than 80 EU projects in the last years; the most relevant ones are:
• As Project Coordinator: ECOAST-COFASP ERA-net; ARIEL, ARIEL PLUS - ADRION Programme; WATERCARE, ECOSS, SOUNDSCAPE - Italy – Croatia Programme; DELPHI – LIFE18; MANTIS - DG MARE; JPI ARENA - JPI AMR - Aquatic Pollutants; BlueMissionMed – Horizon Europe;
• As Project Partner: PHAROS4MPAs, B-Blue – Interreg Med 2014-2020; ITACA, ADRIREEF, PRIZEFISH, FAIRSEA, DORY, ARGOS – Italy – Croatia Programme; PREP4BLUE – Horizon Europe; ECOSCOPE, NAUTILOS, CIRCLES, PSYCHRO-FILM, SeaDataCloud, MINOUW, COEXIST, JERICO, JERICO Next, EquiMar, PERSEUS - FP7/H2020; BLUEBIO - H2020 - ERA-NET COFUND; ELIFE - LIFE18; ArtReefs – EASME/EMFF; STREAM DG MARE; Rightfish – BlueBioConfund; AGRI-FISH - PRIMA 2021 - Partnership for Research and Innovation in the Mediterranean Area;.

Co-financing

Source	Amount	Percentage
ERDF	216.800,27	80,00 %
Partner contribution	54.200,07	20,00 %
Partner total eligible budget	271.000,34	100,00 %

Origin of partner contribution

Source of contribution	Legal status of contribution	Amount	% of total partner budget
CNR_IRBIM	Public	0,00	0,00 %
FdR (Fondo di Rotazione)	Automatic public	54.200,07	20,00 %

Total		
Sub-total public contribution	0,00	0,00 %
Sub-total automatic public contribution	54.200,07	20,00 %
Sub-total private contribution	0,00	0,00 %
Total	54.200,07	20,00 %

State Aid		
State aid criteria self-check		
Criterium I: Is the partner involved in economic activities through the project?		
1. Will the project applicant implement activities and/or offer goods/services for which a market exists?	No	For this partner no state aid are foreseen for this project proposal
2. Are there activities/goods/services that could have been undertaken by an operator with the view to making profit (even if this is not the applicant's intention)?	No	For this partner no state aid are foreseen for this project proposal
Criterium II: Does the partner receive an undue advantage in the framework of the project?		
1. Does the project applicant plan to carry out the economic activities on its own i.e. not to select an external service provider via public procurement procedures for example?	No	For this partner no state aid are foreseen for this project proposal
2. Will the project applicant, any other operator not included in the project as a project partner or the target audience gain any benefits from its project economic activities, not received in the normal course of business (i.e. not received in the absence of funding granted through the project)?	No	For this partner no state aid are foreseen for this project proposal
Result of State aid criteria self-check:	No risk of state aid	
State aid relevant activities		
GBER scheme / de minimis		

B.1 Project Partner 3	
Partner number	3
Partner role	PP
Name of the organisation in original language	Associazione Mediterranea Acquacoltori
Name of the organisation in english	Mediterranean Aquaculture Association
Organisation abbreviation	AMA
Department / unit / division	Operating unit 1: business consultancy, management administration and business planning in Cattolica (RN)
Partner main address	
Country	Italia (IT)
NUTS 2	Lazio (ITI4)
NUTS 3	Roma (ITI43)
Street, House number, Postal code, City	Viale della Grande Muraglia 155 00144 Roma
Homepage	https://www.a-m-a.it/
Address of department / unit / division (if applicable)	
Country	Italia (IT)
NUTS 2	Emilia-Romagna (ITH5)
NUTS 3	Rimini (ITH59)
Street, House number, Postal code, City	Via Enrico Toti 2 47841 Cattolica
Legal and financial information	
Type of partner	Business support organisation
Subtype of partner	
Legal status	Private
Sector of activity at NACE group level	M.70.22
VAT number (if applicable)	03265670400
Is your organisation entitled to recover VAT based on national legislation for the activities	No

Legal and financial information	
implemented in the project?	
Tax number	03265670400
PEC address	a.m.a@legalmail.it
PIC (from EC Participant Register)	966982428
Contact	
Legal representative	Mr. Giuseppe Prioli
Contact person	Mr. Eraldo Rambaldi
Email	info@a-m-a.it
Telephone no.	0039 0644251946

Motivation

Which of the organisation's thematic competences and experiences are relevant for the project?

The Associazione Mediterranea Acquacoltori (AMA), founded in 2002, promotes the representation, assistance, development and coordination of its associated companies, in order to promote, enhance and protect all the activities that constitute the aquaculture production chain, with special focus on the shellfish farming industry. AMA participating in this proposal with the operational headquarters of Cattolica. Moreover, AMA has gained expertise directly or through its associates on mariculture techniques, mainly in the sector of breeding bivalve molluscs. Some experiences have turned towards integrated mariculture practices both in the open sea and in lagoon environments.
The association aims to:
- contribute to improving the knowledge and transparency of the production and market of aquaculture products;
- contribute to a better coordination of the placing on the market of aquaculture products, including through research and market studies;
- disseminating the information and carrying out the research needed to direct production towards products more suited to market needs and consumer tastes and aspirations, in particular as regards the qualitative aspects and the methods contributing to the sustainable exploitation of resources;
- enhancing and protecting designations of origin, quality marks and geographical indications;
- to define, as regards the production and marketing of fishery products, more restrictive rules than Community or national rules;
- promoting the enhancement of national aquaculture products.

What is the role (contribution and main activities) of your organisation in the project?

AMA is a partner of the project proposal, participating in the project planning and management phases, development of pilot experiences, dissemination activities among its stakeholders and information activities among consumers. Through this cooperation project, AMA will be able to meet industry experts and university researchers, acquiring new knowledge and new experiences in the field of integrated mariculture and seaweed farming, expanding the possibilities of diversifying the production sector both nationally and in Europe. AMA will support all project partners in the directly involvement of the producers in the project activities, and represents in the partnership the the necessary link for the

Motivation

transfer of scientific knowledge into the production practice of mussel producers. In addition, it will play a decisive role in capitalizing project results. This will allow the dissemination of project activities even beyond the programme area.

If applicable, describe the organisation's experience in participating in and/or managing EU co-financed projects or other international projects.

AMA, in the past, participated in Horizon 2020 project named ILIAD an EU funded project, built on the assets resulting from two decades of investments in policies and infrastructures for the blue economy and aimed at establishing an interoperable, data-intensive, and cost-effective Digital Twin of the Ocean. AMA also was project partner in a Life project named "Life MUssel Sustainable production (re)cyCLES" (LIFE20 ENV/IT/000570) aimed to reduce the environmental impact of polypropylene socks used for mussel farming, by developing and promoting a more sustainable production value chain. This minimised the dispersion of polypropylene socks in the marine environment, and encourage their recovery and recycling for the production of new socks and/or other items.

Co-financing

Source	Amount	Percentage
ERDF	135.664,00	80,00 %
Partner contribution	33.916,00	20,00 %
Partner total eligible budget	169.580,00	100,00 %

Origin of partner contribution

Source of contribution	Legal status of contribution	Amount	% of total partner budget
AMA	Private	0,00	0,00 %
FdR (Fondo di Rotazione)	Automatic public	33.916,00	20,00 %

Total

Sub-total public contribution	0,00	0,00 %
Sub-total automatic public contribution	33.916,00	20,00 %
Sub-total private contribution	0,00	0,00 %
Total	33.916,00	20,00 %

State Aid

State aid criteria self-check

Criterium I: Is the partner involved in economic activities through the project?

1. Will the project applicant implement	No	For this partner no state aid are foreseen for

State aid criteria self-check		
Criterium I: Is the partner involved in economic activities through the project?		
activities and/or offer goods/services for which a market exists?		this project proposal
2. Are there activities/goods/services that could have been undertaken by an operator with the view to making profit (even if this is not the applicant's intention)?	No	For this partner no state aid are foreseen for this project proposal
Criterium II: Does the partner receive an undue advantage in the framework of the project?		
1. Does the project applicant plan to carry out the economic activities on its own i.e. not to select an external service provider via public procurement procedures for example?	No	For this partner no state aid are foreseen for this project proposal
2. Will the project applicant, any other operator not included in the project as a project partner or the target audience gain any benefits from its project economic activities, not received in the normal course of business (i.e. not received in the absence of funding granted through the project)?	No	For this partner no state aid are foreseen for this project proposal
Result of State aid criteria self-check:	No risk of state aid	
State aid relevant activities		
GBER scheme / de minimis		

B.1 Project Partner 4	
Partner number	4
Partner role	PP
Name of the organisation in original language	Sveučilište u Dubrovniku
Name of the organisation in english	University of Dubrovnik
Organisation abbreviation	UNIDU
Department / unit / division	Department of Applied Ecology
Partner main address	
Country	Hrvatska (HR)
NUTS 2	Jadranska Hrvatska (HR03)
NUTS 3	Dubrovačko-neretvanska županija (HR037)
Street, House number, Postal code, City	Branitelja Dubrovnika 41 20000 Dubrovnik
Homepage	https://www.unidu.hr/
Address of department / unit / division (if applicable)	
Country	Hrvatska (HR)
NUTS 2	Jadranska Hrvatska (HR03)
NUTS 3	Dubrovačko-neretvanska županija (HR037)
Street, House number, Postal code, City	Ćira Carića 4 20000 Dubrovnik
Legal and financial information	
Type of partner	Higher education and research organisations
Subtype of partner	
Legal status	Public
Sector of activity at NACE group level	P.85.4
VAT number (if applicable)	01338491514
Is your organisation entitled to recover VAT based on national legislation for the activities implemented in the project?	No

Legal and financial information	
Tax number	01338491514
PEC address	niksa.burum@unidu.hr
PIC (from EC Participant Register)	998812396

Contact	
Legal representative	Mr. Nikša Burum
Contact person	Mrs. Marina Brailo Šćepanović
Email	marina.brailo@unidu.hr
Telephone no.	+385 20 445 880

Motivation

Which of the organisation's thematic competences and experiences are relevant for the project?

Researchers from the University of Dubrovnik, Department of Applied Ecology (previously department of Aquaculture) have a wealth of experience related to different aquatic ecosystems, as they are experts in biology and biotechnology. The staff is involved in scientific research and higher education on topics of marine ecology, biology, applied marine sciences such as aquaculture and fisheries, but also provides Research & Development support of commercial aquaculture practices with a focus on bivalve farming, and thus closely works with local farmers and their associations. This wealth of knowledge centered around bivalve farming is showcased in the University's Mariculture Laboratory located in Mali Ston Bay - the most productive bivalve production area in Croatia and the largest production site for European flat oyster in the Mediterranean. The laboratory facilities house land-based aquaculture systems mostly related to bivalve farming as well as research laboratories, on-site accommodation and classroom, and a marine concession for scientific aquaculture practices which is currently used for suspended bivalve farming on floating longlines. In addition, researchers from the University of Dubrovnik, Department of Applied Ecology are also included in teaching activities on Undergraduate study programme of Applied Marine Ecology and Graduate study program of Mariculture. One of the mail goals of these programmes is involving as many students in scientific research so the UNIDU teachers could engage to the students in the project implementation in order to improve their practical knowledge, especially because the proposed project deals directly with mariculture and marine ecosystems.

What is the role (contribution and main activities) of your organisation in the project?

The UNIDU research team will be involved in all activities performed in the project, but with different tasks. Based on their experience and previous collaboration with shellfish farmers they will identify the macroalgae and production systems to transfer the IMTA systems in pilot sites. One will be the UNIDU concession site and the other will be selected with the help of other partners. UNIDU researchers will also perform all the analysis of the environmental parameters at selected sites in Croatia. They will prepare samples from Croatian side to be shipped to Italy for valorisation of seaweeds and fisheries /aquaculture by-products with a Biorefinery Approach and will act as support of the key potential users identified in the Croatian area. In addition, UNIDU research team will take part in Cross-borders capacity

Motivation

building in order to create a network of key stakeholders such as researchers, entrepreneurs, general public, local, regional and state bodies of public authority, regional and local development agencies and similar. In collaboration with other partners they will work on memorandum of understanding between all interested parties and prepare results presentation for the final conference.
In general, thanks to this project, PP4 expects to:
-Increase research capacity of the University of Dubrovnik;
-Establish tight relations with Italian research partners, for scientific collaboration on current and future projects;
-Expand on existing laboratory and/or culture equipment;
-Produce innovative scientific publications based on performed activities and applicable results that may generate spin-off research and/or commercial application;
-Expand knowledge base for supporting development of sustainable aquaculture;
-Improve visibility of the University of Dubrovnik and its Mariculture Laboratory.

If applicable, describe the organisation's experience in participating in and/or managing EU co-financed projects or other international projects.

Researchers from the University of Dubrovnik, Department of Applied Ecology have experience in different type of projects. They have successfully taken part in IPA Adriatic CBC 2007-2013 on project BALMAS that included partners from the whole Adriatic region. They are currently involved in three projects from Horizon 2020. Through Blue-connect they are reconnecting science with society by bringing research closer to the public, strengthening the public recognition of science and research education, building trust and understanding of science and its impact on blue society. SeaClear and Seaclear2 aim to solve, with the help of robots and artificial intelligence, one of the most important environmental problems - ocean litter. UNIDU researchers are also participating in INTERREG IT-HR CBC projects: INNOVAMARE - enhancing knowledge transfer between enterprises, R&D centers, HE and the public sector through education and capacity building actions in order to increase the effectiveness of innovation activities in the blue economy; MARLESS - optimization of marine litter monitoring, awareness raising and governance, with Pilot Actions investigating the use of mussels for water column microplastic purification and designing of an autonomous mobile net array for marine litter collection. They are external expertise on the strategic INTERREG IT-HR CBC project ARGOS, dedicated to developing shared governance of sustainable fisheries and aquaculture in the Adriatic. Through this project a bivalve hatchery was established in the University’s Mariculture Laboratory and a network of 3 centers for bivalve aquaculture were established along the Croatian coast, including our Mariculture Laboratory. The Department of Applied Ecology is managing ProtectAS, a project funded by ESI funds, and have experience in ERASMUS+ Capacity Building in HE as well as Erasmus + Cooperation partnerships in vocational education and training.

Co-financing

Source	Amount	Percentage
ERDF	210.480,00	80,00 %
Partner contribution	52.620,00	20,00 %
Partner total eligible budget	263.100,00	100,00 %

Origin of partner contribution			
Source of contribution	**Legal status of contribution**	**Amount**	**% of total partner budget**
UNIDU	Public	52.620,00	20,00 %
Total			
Sub-total public contribution		52.620,00	20,00 %
Sub-total automatic public contribution		0,00	0,00 %
Sub-total private contribution		0,00	0,00 %
Total		52.620,00	20,00 %

State Aid		
State aid criteria self-check		
Criterium I: Is the partner involved in economic activities through the project?		
1. Will the project applicant implement activities and/or offer goods/services for which a market exists?	No	For this partner no state aid are foreseen for this project proposal
2. Are there activities/goods/services that could have been undertaken by an operator with the view to making profit (even if this is not the applicant's intention)?	No	For this partner no state aid are foreseen for this project proposal
Criterium II: Does the partner receive an undue advantage in the framework of the project?		
1. Does the project applicant plan to carry out the economic activities on its own i.e. not to select an external service provider via public procurement procedures for example?	No	For this partner no state aid are foreseen for this project proposal
2. Will the project applicant, any other operator not included in the project as a project partner or the target audience gain any benefits from its project economic activities, not received in the normal course of business (i.e. not received in the absence of funding granted through the project)?	No	For this partner no state aid are foreseen for this project proposal
Result of State aid criteria self-check:	No risk of state aid	
State aid relevant activities		
GBER scheme / de minimis		

B.1 Project Partner 5	
Partner number	5
Partner role	PP
Name of the organisation in original language	Centar za poduzetništvo d.o.o.
Name of the organisation in english	Center for Entrepreneurship
Organisation abbreviation	CZP
Department / unit / division	
Partner main address	
Country	Hrvatska (HR)
NUTS 2	Jadranska Hrvatska (HR03)
NUTS 3	Dubrovačko-neretvanska županija (HR037)
Street, House number, Postal code, City	Vukovarska 16 20000 Dubrovnik
Homepage	www.czp.hr
Address of department / unit / division (if applicable)	
Country	
NUTS 2	
NUTS 3	
Street, House number, Postal code, City	
Legal and financial information	
Type of partner	Business support organisation
Subtype of partner	
Legal status	Public
Sector of activity at NACE group level	M.70.22
VAT number (if applicable)	98475504404
Is your organisation entitled to recover VAT based on national legislation for the activities implemented in the project?	Yes
Tax number	98475504404

Legal and financial information	
PEC address	czp@czp.hr
PIC (from EC Participant Register)	892711371
Contact	
Legal representative	Mrs. Karmen Kutnjak
Contact person	Mrs. Karmen Kutnjak
Email	czp@czp.hr
Telephone no.	+38520418401

Motivation

Which of the organisation's thematic competences and experiences are relevant for the project?

The main activities of the Centre for Entrepreneurship are continuous educational programs and mentoring sessions provided to entrepreneurs free of charge. On an annual basis, Centre organises about 50 complimentary educational sequences for entrepreneurs, along with special interest seminars or workshops, conferences and networking events.
Centre, as an entity, is a project leader or project partner on several national projects that are strictly focused on entrepreneurship. Focus of the Centre is on facilitating local SMEs in their business digital transition in order to achieve competitiveness on the national and global market by positioning their products, as well as collaborating with academic institutions on creating mentoring networks oriented to the ever-changing entrepreneurial needs. The Centre for Entrepreneurship has established itself as a leading institution in the field of entrepreneurship education, consultancy and training over the course of 20 years.

What is the role (contribution and main activities) of your organisation in the project?

Within the project scope, Centre for Entrepreneurship will share its knowledge and local expertise in terms of competence building programs, networking activities and creation of platforms of cooperation between different stakeholders. Through its wide network of contacts, the Centre will contribute to the dissemination of project activities.
CZP will participate in preparing the action plan and the analysis of the characteristics for the industrialization of the process and the development of the product marketing phases through the identification of the market segment.
CZP will take part in cross-borders capacity building, map the key stakeholders and encourage their participation. CZP will also collaborate on joint development of memorandum of understanding as well as present project results on the final conference.
Thanks to this project, centre for entrepreneurship expects to:
- Increase capacity of the Centre’s employees in terms of business counseling and fostering development SMEs involved in different blue sectors (aquaculture, fisheries, seafood processing)
- Enable fresh information and knowledge transfer for SME’s and other stakeholders
- Improve visibility of the Centre for Entrepreneurship
- Establishing a network of relevant stakeholders in blue sectors crucial for development and exploitation of the existing potential

Motivation

If applicable, describe the organisation's experience in participating in and/or managing EU co-financed projects or other international projects.

This partner had experiences in several EU funded project as detailed below:
1. CREATURES Program: Adriatic-Ionian Programme INTERREG V-B Transnational 2014-2020 – Adrion March 2020. - August 2022. Associated partner. CREATURES aims at preserving cultural heritage, promoting sustainable and experiential tourism in the ADRION Region by exploiting Cultural&Creative Industries'(CCI) potential, finding a right balance between innovation and conservation of the Adrion rich cultural heritage. The Centre was involved as associated partner in the organization and execution of the Acceleration Programme that aimed to increase CCI-related SMEs and start-ups' capacities to do business supporting cultural heritage preservation and sustainable tourism.
2. ENTER – transfer Interreg Central Europe February 2017 – May 2020 Associated partner. The project related to services of supporting business transfer and development of regional business transfer plan /guidelines, i.e., support in the inclusion and use of the platform.
3. ECO-Nautinet Program: Adriatic-Ionian Programme INTERREG V-B Transnational 2014-2020 – Adrion 01.02.2017. – 31.01.2019. Facilitator in organization of the workshop in Dubrovnik that was intended for entrepreneurs in the nautical sector (producers, IT sector, service providers in nautical tourism, etc.) within the ECONAUTINET project "Support to small and medium-sized enterprises of the nautical sector of the Adriatic-Ionian region". The activities of the Centre were related to the visibility of the project among local entrepreneurs and its evaluation. In addition to the above-mentioned experiences, Centre is a part of institutions network under the Dubrovnik-Neretva region that receives the technical assistance from regional development agency DUNEA and co-operates within its area of expertise with the institutions members of the network on various projects.

Co-financing

Source	Amount	Percentage
ERDF	146.180,73	80,00 %
Partner contribution	36.545,19	20,00 %
Partner total eligible budget	182.725,92	100,00 %

Origin of partner contribution

Source of contribution	Legal status of contribution	Amount	% of total partner budget
CZP	Public	36.545,19	20,00 %

Total

Sub-total public contribution	36.545,19	20,00 %
Sub-total automatic public contribution	0,00	0,00 %
Sub-total private contribution	0,00	0,00 %
Total	36.545,19	20,00 %

State Aid		
State aid criteria self-check		
Criterium I: Is the partner involved in economic activities through the project?		
1. Will the project applicant implement activities and/or offer goods/services for which a market exists?	No	For this partner no state aid are foreseen for this project proposal
2. Are there activities/goods/services that could have been undertaken by an operator with the view to making profit (even if this is not the applicant's intention)?	No	For this partner no state aid are foreseen for this project proposal
Criterium II: Does the partner receive an undue advantage in the framework of the project?		
1. Does the project applicant plan to carry out the economic activities on its own i.e. not to select an external service provider via public procurement procedures for example?	No	For this partner no state aid are foreseen for this project proposal
2. Will the project applicant, any other operator not included in the project as a project partner or the target audience gain any benefits from its project economic activities, not received in the normal course of business (i.e. not received in the absence of funding granted through the project)?	No	For this partner no state aid are foreseen for this project proposal
Result of State aid criteria self-check:	No risk of state aid	
State aid relevant activities		
GBER scheme / de minimis		

Associated organisations

No associated organisations

C - Project description

C.1 Project overall objective

Below, you can see the Programme priority specific objective your project will contribute to (chosen in section A.1.).

1.2: Developing skills for smart specialisation, industrial transition and entrepreneurship

Project overall objective

Now think about your main objective – what do you aim to achieve by the end of your project? Remember your project needs to contribute to the programme's objective.
Your objective should:

- be realistic and achievable by the end of the project, or shortly after;
- specify who needs project results and in which territory;
- be measurable – indicate the change you are aiming for.

BIO-BASED valorises marine biomass and aquaculture side-streams generated in IMTA plants, to introduce the products and services into the international market. The project will establish a R&D scheme for strengthening Italy-Croatia's position in blue bio-economy, improving knowledge base of the key SMEs, identifying the development opportunities of the sustainable use of bio-resources, and creating a network of collaboration between researchers and producers.

C.2 Project relevance and context

C.2.1 What are the common territorial challenge(s) that will be tackled by the project?

Please describe why your project is needed in the programme area and the relevance of your project for the programme area, in terms of common challenges and opportunities addressed.

Algae farming at a adriatic level is mainly concentrated in the brackish lagoon environments and almost exclusively affects gracilaria, for cosmetic and pharmaceutical use, while in the marine environment at present there are no production realities despite registering a growing interest in breeding of these plants with possible blossoms in the food and cosmetic-pharmaceutical fields.
In the off-shore areas of the Adriatic Sea, the environmental conditions seem to be favorable to the innovative practices identified by the BIO-BASED project, due to a series of coincidences:

- Marine environments with a high content of nutrients, such as nitrogen and phosphorus, useful for the growth of algae;
- Presence of long-line type off-shore farms used for the breeding of bivalve molluscs, mainly mussels, but they are suitable, with few modifications, also for the breeding of algae in suspension;
- An increasing interest in IMTA integrated aquaculture practices, capable of balancing intensive aquaculture practices and diversifying sea-farmed products.

The main algae that could be used in the Adriatic are Gracilaria (a red algae), Ulva and Codium (green algae). Gracilaria could be mainly used in the production of phycobiliproteins (fluorescent pigments for pharma applications) and agar agar (a hydrocolloid of vegetable origin), Ulva and Codium for food purposes.
In the two-year period 2020-2021, the "Ulisse l'alga italiana" project was launched, a circular economy project aimed at enhancing the natural properties of algae. Thanks to the intersectoral collaboration with local realities, an attempt has been made to favor the balance and improvement of the environmental conditions of the Adriatic coast, starting from the algae, also with the aim of producing vegetable products that are easy to use for food and pharmaceutical purposes.
Other projects have been presented, in the context of the European structural funds, and some tests have been carried out in mariculture plants in cages, but always with the character of pilot experiences and practical tests, without yet having a precise confirmation as a consolidated production.
In conclusion, despite not having, at present, companies active in the production of algae, there is a growing interest in the Adriatic in carrying out breeding activities, both aimed at diversifying marine aquaculture products and both to encourage green economies with high sustainability and able to interact with other fish and bivalve mollusc farms, according to IMTA techniques, to reduce the presence of nutrients in the sea and contribute to the reduction of CO2.

C.2.2 How does the project tackle identified common challenges and/or opportunities and what is new about the approach the project takes?

Please describe new solutions that will be developed during the project and/or existing solutions that will be adopted and implemented during the project lifetime. Describe also in what way the approach goes beyond existing practice in the sector/programme area/participating countries.

The Blue Bioeconomy, as a part of the overall EU Bioeconomy Strategy and Circular Economy Package, offers great potential for the sustainable use of underexploited resources and connects, directly or indirectly, several sectors, (e.g. fisheries, aquaculture, energy, tourism, conservation, local development, etc.). However, the links between ocean health, impacts on resources and blue bioeconomy sectors still represent one of the knowledge gaps to be overcome to reach “a sustainably harvested & productive ocean” goal, as recognized by the UN-Decade of Ocean Science for Sustainable Development. In line with this evidence, within the EU-Mediterranean context, the BIO-BASED project is aimed at establishing a R&D scheme for strengthening Italy-Croatia’s position in the blue bioeconomy, according to our well-established research know-how:

- Seaweeds production in Integrated Multi Trophic Aquaculture plants (IMTA), reduction of catabolites, mitigation of environmental impacts and diversification and innovation in aquaculture production. Integrated Multi-Trophic Aquaculture (IMTA) systems, already used by approximately 10% of the European aquaculture companies, may represent an opportunity to increase the economic and environmental sustainability of the production of all the involved cultures. It is regarded as a potential mitigation approach, reducing the nutrients and organic matter inputs from aquaculture, improving the wellness and, therefore, the quality of grown species. Moreover, the growing trend in seaweed aquaculture at EU level demonstrated by the number of operating companies mapped, represents new opportunities for the multiuse of the maritime space and the sustainable production of algae biomass while providing a series of ecosystem services such as bioremediation and carbon uptake.
- Valorisation of seaweeds and fisheries/aquaculture by-products with a Biorefinery Approach. Biorefining is the “sustainable synergetic processing of biomass into a spectrum of marketable food and feed ingredients, products (chemicals, materials) and energy (fuels, power, heat)”. Many types of biorefinery, including the blue biorefinery (e.g., using fish bycatch and cut-offs, seaweeds) may sustain the alignment with a number of SDGs, via eco-innovative and sustainable bioprocess systems (Kostas et al., 2021 and references therein). Here, we propose a possible approach to exploit marine biomass to set up biorefinery strategies based on green chemistry principles for converting aquaculture sidestreams and seaweeds from IMTA into valuable and marketable products with applications in biotech, food, feed and agriculture sectors. Among the possible products potentially obtained by such an approach, we include biostimulants for agriculture, feed ingredients, pigments /biocompounds for human consumption.
- Production of high value compounds (pigments, biomaterials, biostimulants, proteins, etc.), functional feeds for aquaculture. In more economic details for highlighting the advantages for SMEs involved in the project, starting with the freshly harvested wet seaweed (15% dry matter), it represents a trade value of €25-€150 per ton wet material corresponding to €300-€1000 per ton (DM) (brown seaweed, red seaweed). These numbers are based on today#s prices of Cargill, one of the world#s leading producers of alginates (i.e. food additives), who is buying 10,000 tons seaweeds at prices of €1100 - €3700 per ton (DM). The €1100 per ton material is converted into alginates that are typically sold at €11 per kg. For high-value products, the Company Ocean Rainforest (based in the Faroe Islands) has made a low volume/high price business, selling S. Latissima at €5 per kg wet material corresponding to €33.000 per ton(DM) for cosmetics and the food industry (<100 ton wet material /year).

C.2.3 Why is cross-border/transnational/inter-regional cooperation needed to achieve the project's objectives and result?

Please explain why the project objectives cannot be efficiently reached acting only on a national/regional /local level and/or describe what benefits the project partners/target groups/ project area/programme area gain in taking a cross-border/transnational/inter-regional approach.

BIO-BASED aims to test and structure the process of industrialization of integrated multitrophic aquaculture (IMTA) in the Adriatic, to find of new ways of valorising marine biomass and aquaculture side-streams generated in IMTA plants, and bringing the achieved bio-based products and services to the market, will be the main targets of the project
At the same time, IMTA is a system of containment of the environmental impact due to the symbiotic breeding of several marine species in order to make the environment more reactive and resistant to stress, limit and recycle livestock waste in a circular economy and increase the biomass produced in such a way as to increase the profitability of farming. Europe is a great producer and a great consumer of mussels but as indicated by the report on the EU Fish Market of the European Market Observatory for Fisheries and Aquaculture Products (EUMOFA) the supply is not able to meet the demand, in fact even the major producers like Spain, being also maximum consumers, can meet the internal demand, thus addressing the import/export markets. Therefore, the cooperation between Italy and Croatia has a dual purpose, on the one hand to aim at the sustainability of the production process, on the other hand to support the sector in terms of market and productivity. This is will be possible through an exchange and collaboration between the research institutes of the two countries, working in synergy with representatives on the Italian and Croatian side of producers, in order to transfer this model to the end users, which are the mussel production companies. Moreover, structuring a process of industrialization of this practice without the involvement of key-stakeholders at the Adriatic level would not lead to common results in the Adriatic area, leading to an imbalance already in the internal market. Is it important to highlight that BIO-BASED will have a different impacts also in other market sectors of the both countries. In fact, the role of marine macroalgae in offering good ecosystem services is well known, in fact they enrich seawater with oxygen, naturally mitigate nutrient excess and are increasingly used in the bioremediation of chemical pollution. Their biomass is recognized as a good stock of bio-products, useful in different biotechnological applications in medicine, cosmetics or formulation of nutraceuticals and human food products. However, to become marketable, biomass needs to be produced in considerable quantities, therefore, macroalgae are suitable candidates for mass production in sustainable multitrophic aquaculture plants.

C.2.4 Who will benefit from your project outputs?

In the first column of each row, please select one of the pre-defined target groups from the drop-down list. In the second column explain in more detail exactly who will benefit from your project. For example, if you choose the category education, you need to explain which specific schools or groups of schools and in which territory.

Target Group	Specification
Local public authority	The municipalities of the pilot sites will be involved in the consultation process and in the Living Lab in order to share the results of the proposal and to transfer the action plan that will be developed. Target value: 15
Regional public authority	The Regional authority of the pilot sites will be involved in the consultation process and in the events in order to share the results of the proposal and to transfer the action plan to adopted in each territories. Target value: 5
SME	The SMEs of the pilot sites will be directly involved in the activities foreseen in WP3, moreover the partners of the project will select based on the requirements of the pilot sites studied some SMEs for the testing phase foreseen by the activities of WP2. Target value: 50
Interest groups including NGOs	NGOs representing the categories of mussels will be involved in the activities of living lab and consultation to collect recommendations and to promote the results of the project. Moreover, due the importance of their action in the sector will be involve reference of national NGO of the sector, as well as Federagripesca and Confcooperative. Target value: 20
General public	To promote this economic segment of the market will be fundamental the promotion and involvement of the community that will be sensitized on the topic and on the added value of a sustainable and circular production. This target will be reach through the communication activities. Target value: 30000
Sectoral agency	Involvement in the activities of the main sector agencies in the fields of nature, water analysis, productivity and the marine sector. Moreover all FLAGs of the pilot sites will be involved in the project activities. Target value: 15

C.2.5 How does the project contribute to wider strategies and policies?

Please indicate to which strategies and policies your project will contribute. Then describe in what way you will contribute.

Strategy	Contribution
EU Strategy for the Adriatic and Ionian Region	BIO-BASED directly contribute to all the flagship projects of the Pillar 1 (Blue Growth) of EUSAIR. In particular, BIO-BASED is strongly linked to the challenges, needs, goals of the flagship projects "Fostering quadruple helix ties in the fields of marine technologies and blue bio- technologies for advancing innovation, business development and business adaptation in blue bio-economy" and "Promoting sustainability, diversification and competitiveness in the fisheries and aquaculture sectors through education, research & development, administrative, technological and marketing actions, including the promotion of initiatives on marketing standards and healthy nutritional habits".
European Green Deal	The European Green Deal and the Farm to Fork Strategy underline the potential of farmed seafood as a source of protein for food and feed with a low-carbon footprint which has an important role to play in helping to build a sustainable food system. The Farm to Fork Strategy also sets specific targets for aquaculture, in particular the reduction of sales of antimicrobials and a significant increase in organic aquaculture. Aquaculture creates jobs and economic development opportunities in the EU' s coastal and rural communities. This sector can also help: decarbonise the economy; fight climate change and mitigate its impact; reduce pollution; contribute to better preserving ecosystems (in line with the objectives of the Biodiversity strategy and the Zero-pollution ambition for a toxic-free environment); and be part of a more circular management of resources. BIO-BASED will contribute to define a strategic and long-term approach for the sustainable growth of EU aquaculture in the Adriatic area.
Other	This project will contribute to the implementation of the Marine Strategy Framework Directive (Directive 2008/56/EC), which demands that all Member States ensure the attainment of 'Good Environmental Status' of their marine waters. Indeed, as indicated in the Marine Strategy, in relation to eutrophication and contaminants intended for consumption, the pressures exerted by aquaculture are generally local and small-scale. Algae cultivation should be also consider that can contribute to marine ecosystem conservation and restoration, where the EU puts forward various legislations with a positive bearing on EU ecosystems. The Habitats Directive, Marine Strategy Framework Directive and the Water Framework Directive aim to conserve and ensure good environmental status of EU waters to protect marine life, including algae, from the cumulative pressures of climate change and other anthropogenic pressures. Furthermore, all Directives specify that developments, including algae cultivation, should not lead to negative ecosystem impacts. The BIO-BASED approach will be in line with these strategy, and the results will be promote to promote this process to other programme area.

Strategy	Contribution
Other	Seaweed farming suggests a unique opportunity for a novel industry that has the potential to develop in-line with the United Nations SDGs and to contribute diverse benefits, including local ecosystem services, food provisioning, and economic opportunities. Indeed, seaweed farming is most likely to benefit progress towards achieving SDGs 2 (Zero Hunger), 8 (Decent Work and Economic Growth), 9 (Industry, Innovation, and Infrastructure), 12 (Sustainable Production and Consumption), and 15 (Life on Land). But expectations of seaweed farming may also fall short for supporting some goals if appropriate measures are not implemented to mitigate potential impacts, most notably SDG 14 (Life Below Water). Achieving positive outcomes across the range of SDGs will require committed engagement between industry, research and regulators, and in this frame BIO-BASED proposal will contribute through the development of the Action Plan to design the pathway for the innovation, in sustainable way, of the seaweed production in the Adriatic sea.
Other	The document "BLUE BIOECONOMY – TOWARDS A STRONG AND SUSTAINABLE EU ALGAE SECTOR" has been published by the European Commission on 15.11.2022. The EU Algae Initiative will aim to unlock the algae potential in Europe by increasing sustainable production, ensuring safe consumption and boosting innovative use of algae and algae-based products. These have the potential to contribute to mitigate the impact of global challenges such as climate change, environmental degradation, biodiversity loss, and unsustainable food production while creating new business opportunities for Europe. In line with this European initiative, BIO-BASED will contribute with the specific activity 2.2 that foreseen the valorization of this approach in the market sector, supporting the transfer of this process to the SMEs that it will be involved in the project activities.
Other	COMMON FISHERIES POLICY ADOPETED ON 21.02.2023 The goal of the common fisheries policy (CFP) is to ensure long-term sustainability for fisheries and aquaculture, the availability of food supplies and a fair standard of living for fisheries and aquaculture communities. This includes everyone involved in the entire value chain, in order to preserve the socio-economic fabric of coastal communities. By combining environmental, social and economic sustainability objectives, the CFP was a precursor of the European Green Deal and its related strategies . In turn, the European Green Deal strengthened the CFP approach, emphasising the triple contribution of fisheries and aquaculture to the economy and employment of coastal regions, food security in the EU and the protection of the marine environment. The BIO-BASED proposal will directly contribute to the acheivement of this goal in the Adriatic area.

Strategy	Contribution
Other	Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - EU Action Plan: Protecting and restoring marine ecosystems for sustainable and resilient fisheries, COM(2023)102 As indicated in the EU communication, there is an urgent need to step-up action at EU level to reverse the decline of marine ecosystems by tackling all pressures. As outlined in this action plan, this must include action to make fisheries management more sustainable and modern, in order to protect and restore marine ecosystems and achieve their good environmental status, as well as encourage and inspire the world to follow suit. In the action plans Member States are invited to adopt dedicated action plan at national level to reach this results in the next years. According to this BIO-BASED proposal will directly contribute to design the pathway to innovate in sustainable key the sectors of the Seaweeds production.
Other	The new Strategic Guidelines for Aquaculture promoted in 2021 by the European Commission recognize algae's potential as alternative protein source for sustainable food and feed systems and in promoting aquaculture systems with lower environmental impact. As renewable biological resources, algae are also a small but growing part of the European Commission's Bioeconomy Strategy 50 , setting out the Commission's priorities for economic activities based on renewable biological resources from land and sea and acting as a cross-sectoral policy framework to ensure optimum use of biological resources, as well as identification and resolving of potential trade-offs. The strategy is also related and fits within the objectives of the Clean planet for all (decarbonisation strategy) 51 , which aims to improve the productivity of aquatic and marine resources to capture the full range of opportunities of the bioeconomy in tackling climate change.
Other	ITALY AQUACULTURE STRATEGY PLAN 2021-2027 The National Strategic Plan for Italian Aquaculture 2021-2027, hereinafter PNSA 2021-2027, is the reference document that the Central Administration wants to provide to regional administrations and all stakeholders, in order to align Italian aquaculture policy with the new strategies adopted under the European Green Deal. In particular, it refers to the Strategy from the producer to the consumer - Farm to Fork2, the Strategy for Biodiversity 2030, the wider context of the Blue Economy and the integration of aquaculture activities with the maritime economy. The NPSA 2021-2027, as for the previous financial programming, is an annex to the new Operational Programme of the European Fund for Maritime Affairs, Fisheries and Aquaculture FEAMPA 2021-2027 (hereinafter FEAMPA 2021-2027 OP) which, thanks to its financial allocation, is the main source of funding for the period considered. Funds for aquaculture may be supplemented by regional and national allocations during the programming period. As foreseen by the FEAMPA 2021-2027 OP, the implementation of part of the measures related to priority two will be delegated to the Regions and the Autonomous Province of Trento as Intermediate Bodies (hereinafter OO.II), following the signing of special delegation agreements.

Strategy	Contribution
Other	Vision and Roadmap for the Strategic Transformation of the Aquaculture Sector 2020-2030 in Croatia Ministry of Agriculture of Croatia in 2020 issued a document “A Vision and Roadmap for the Strategic Transformation of the Aquaculture Sector 2020-2030” where Strategic Objectives of Strengthen the competitiveness of the aquaculture sector and Stimulate innovation across the aquaculture sector are given, along with critical needs such are Increase value-added of aquaculture production, Improve environmental sustainability of aquaculture production practices, facilitate capital investment focused on technology and innovation, Improve access to R&D and uptake of knowledge and technology supporting decision-making and investments (including climate and sustainability) are emphasized. In the same document, a Roadmap of Actions like Target public and private funds towards green and value-creating investments in aquaculture, Foster strong and integrated support systems for knowledge-based aquaculture development and innovation as well as Interventions such Incentivize more investments in efficient and sustainable aquaculture technologies and solutions, Stimulate the development of new aquaculture products with higher added value, Connect the aquaculture sector to growth opportunities provided by sustainable and circular bio-economies, Research key issues affecting the production and marketing of aquaculture products in Croatia, Develop a Central Aquaculture Information System and Knowledge Hub, Encourage innovation partnerships between producers and scientific institutions are listed. Considering the above, the proposed project perfectly fits into the vision of the development of the aquaculture sector in Croatia.

C.2.6 Which synergies with past or current EU and other projects or initiatives will the project make use of?

Project or Initiative	Synergy

Project or Initiative	Synergy
EU Remedia Life Project	This innovative integrated multi-trophic aquaculture (IMTA) system was realized at a preindustrial level in the Gulf of Taranto (southern Italy, northern Ionian Sea), within the framework of the EU Remedia Life project. Long lines containing different collector typologies were placed around the fish breeding cages. Vertical collectors were utilized for both polychaetes and sponges, whilst macroalgae were cultivated in horizontal collectors. Data on the growth and mortality of the target species after the first year of rearing and cultivation are given together with their biomass estimation. Polychaete biomass was obtained from natural settlement on ropes previously hung in the system, while sponges and macroalgae were derived from explants and/or inocules inserted in the collectors. The description of the successional pattern occurring on collectors used for settling until reaching a “stable” point is also described, with indications of additional filter feeder macroinvertebrates other than polychaetes and sponges that are easily obtainable and useful in the system as bioremediators as well. The results demonstrate an easy, natural obtaining of large biomass of sabellid polychaetes settling especially from about a 4 to 10 m depth. Sponges and macroalgae need to be periodically cleaned from the fouling covering. The macroalgae cycle was different from that of invertebrates and requires the cultivation of two different species with about a 6-month cycle for each one. The present study represents one of the first attempts at IMTA in the Mediterranean area where invertebrates and macroalgae are co-cultured in an inshore fish farm. The results of this project on macroalgae cycle will be capitalized during the activity 1.2.
Mol.Mul.SOS Project	Mol.Mul.SOS “Molluschicoltura Multi trofica Sostenibile nel Gargano” FEAMP 2014-2020 – Measure 2.47 “INNOVATION” – Priority 2 – The project aims to encourage innovation and restructuring of the current long-line production system: to encourage and enhance a sustainable and competitive multitrophic shellfish farming, to relaunch the economic and social system of companies currently operating, aware of their own fragility to the test of natural and environmental crises. In addition, the project aims to bring together new competent actors (female and youth entrepreneurship) in the cooperative enterprise, to start a restructuring of the system and create new investment opportunities in aquaculture. The methodology implemented by this project will be capitalized with the activity foreseen by WP1, in this way it will be possible to transfer and apply the methodology in other territory and to develop the output 4.2 "Polyculture experimentation in aquaculture" of Mol.Mul.SOS during the BIO-BASED activity 1.3.

Project or Initiative	Synergy
Up-Running H2020	UP_running project aimed to unlock the European strong potential of woody biomass residues produced by Agrarian Pruning and Plantation Removals (APPR) and to promote its sustainable use as energy feedstock. uP_running has been constructed with the ambition of being the prelude of a self-expansion of APPR wood utilization in Europe. Its vocation is to increase awareness of agrarian sector and energy sector, that this biomass can be an alternative source for energy, and to reduce a general skcepticism, as regard of the technical difficulties and the occurrence of non-successful experiences. Therefore it aimed to firstly demonstrate and produce key tools, then convince the actors to be involved in APPR value chains, and finally expand APPR utilization through the involvement of multiple local actors in 7 EU countries. The tool developed by the Up-Running H2020 project will be use in the activity 3.1 during the living lab with SMEs and FLAGs operators where the action plan will be promoted.
B_Blue Project	INTERREG MED 2014 – 2020 The objectives of the B-Blue project were to bring together key actors in the field of Blue Biotechnologies (bbt) in the Mediterranean Sea, increase their capacity for innovation and foster coordination to unlock their untapped potential for innovation through joint transnational initiatives, also involving organisations from the southern Mediterranean Sea. The transnational coordination framework that the project intended to create is based on a five-fold inclusive approach that includes the socio-environmental perspective in the decision-making process, based on a common knowledge base selected on the potential to address the Sustainable Development Goals (SGDs) at Mediterranean level. The B-Blue project aimed to implement a transnational coordination mechanism for the bbt community through the reciprocal interconnection through the digital bbt community platform and a Med network of territorial collaborative spaces and selected value chains (HUB bbt). The exploitation of marine bioresources through biotechnological solutions is a field with enormous potential for innovation and economic growth, but at the same time a relatively young discipline with a lack of coordination. The platform B_BLUE will be capitalized in the frame of the BIO-BASED proposal, where the results of the project will be promote.
INNOVAMARE	Programme 2014 - 2020 INTERREG V-A Italy - Croatia Innovamare project aim is to enhance framework conditions on cross-border level by jointly develop and implement strategical and operational level capacity that consist of mix of policy instruments and innovation players as a frame for development of innovative technologies for sustainability of Adriatic Sea. Project is set up on mission-oriented approach that rather than focusing on sectors – as in traditional industrial policy – mission-oriented policy focuses on problem-specific societal challenges, which many different sectors interact to solve. In this case we are focusing on using mix of policy instruments together with innovation players to increase effectiveness of innovation activities of underwater robotics and sensors in direction of sustainability of Adriatic sea as a crucial strategical societal challenge on cross-border level. The experience of PP4 in this project will be capitalized during the valorization activity 2.2 take into account the challenges and the industrial policies of the sector.

Project or Initiative	Synergy
PNRR	CNR IRBIM is part of the National Biodiversity Future Center (NBFC), recently launched within the Italian National Recovery and Resilience Plan as part of the Next Generation EU programme, within which it coordinates Italian research bodies on development of innovative ecosustainable marine biotechnologies. The National Centre for Biodiversity carries out research and promotes the development of solutions to monitor, preserve and restore functional biodiversity, in order to counteract the human impact, the effects of climate change and support ecosystem services. At the same time, the Centre supports research and innovation activities for the enhancement of biodiversity through circular economy and restoration economy processes, capable of protecting environmental resources and ensuring the well-being of the person.
STAR AgroEnergy	Programme FP7-REGPOT - Specific Programme "Capacities": Research potential of Convergence Regions. The project is aimed at developing the research potential of the University of Foggia (UFG); three parallel strategic pathways are planned: improving the research activities through an interdisciplinary approach (“bonding” by research integration inside UFG); consolidating a critical mass of researchers (“bridging” by recruitment outside UFG); expanding the research network through large and qualified scientific and non-scientific collaborations (“linking” through two-way secondment collaborations and institutional partnerships). Other, equally relevant, complementary actions are included: upgrading the R&D facilities; dissemination and promotional activities; research evaluation. “Agro-energy” is the topic addressed by the project: obtaining renewable energy through productive activities complementary to farming. The project aims at building up a methodology to reconcile energy production with the ecological harmony and the cultural heritage of the most relevant rural areas of Southern Europe. The methodology developed with STAR project will be capitalized with BIO-BASED proposal.
LIGNOVAL Cost Action FP1306	Scientists are prompted to seek alternative methodologies for the production of materials, fuels and chemicals using low environmental impact technologies and greener methodologies with comparable efficiencies to those currently available in view of the expected resource scarcity and future oil economy. Lignocellulosic residues can constitute a highly promising (and currently largely under-utilised) feedstock with a significant potential to be converted into useful end products. However, a joint multidisciplinary effort from several disciplines including (bio) chemistry, biology, (bio)chemical and biological engineering, forest products sciences as well as environmental sciences and experts in economic assessment in liaison with industry is required to appropriately address the efficient transformation of such residues. The main objective of this Action is to develop a solid European multidisciplinary network able to provide a range of innovative alternatives to the valorisation of lignocellulosic residues to chemicals, fuels and materials making use of environmentally sound protocols from pretreatment/fractionation to conversion to valuable end products. The methodology implemented for the elaboration of MoU will be apply in the BIO-BASED proposal.

Project or Initiative	Synergy
Pro.Ali.Fun	PON02_00186_2937475 One objective of this project was the development of extraction methods of nutraceuticals). The research aimed to develop specific methods for microalgae cultivation, extraction and purification of bioactive compounds (from microalgal biomass) by using supercritical fluids (SFE). The bio-activity of selected metabolites, phytosterols, will be tested. The experimental results will contribute in defining also the most appropriate formulation of this products for the market. This results will be apply during the activity 2.2 of BIO-BASED proposal.
RAMBIO	Rambio project, funded by the Puglia Region under the Future In Research action, aimed to to integrate the production of microalgae with the process of anaerobic digestion of biomass, agricultural and zootechnical residues with a "biorefinery" approach. The algal biomass produced can be used for a wide range of biotechnology applications including the extraction of fine chemicals and biomaterials (with "green technologies"), biodiesel production, biogas (microbiological process), syngas and biochar (thermochemical process)or a combination thereof. The results of this project will be transfer in the pilot sites during the activity 2.1.
INVESTINFISH	INVESTINFISH project funded by the INTERREG Programme Italy-Croatia 2014-2020 aimed to strengthen the competitiveness of F&A production system through promotion of investment programs aimed at acquisition of innovation services. INVESTINFISH implements pilot actions providing some IT-HR F&A SMEs with a roadmap to innovation instruments & services, boosting creation of marketable innovative products and/or processes that will improve the SMEs potential market positioning. Expected benefits for enterprises are: accelerate time to market, increase linkages with innovators, increase F&A enterprises R&D expenditures in new&greener components/technologies/services, to boost HR-IT competitiveness. INVESTINFISH intends also to offer to the F&A sector to substitute the value chain concept with value network, proposing a shift from traditional value chains towards more collaborative value networks. This project will be capitalized during the activity 2.2 of the proposal. Moreover, the references of this project will be involve directly in the cross-border activity foreseen by the activity 3.1.
BlueBio ERANET COFUND	The main objective of BlueBio ERA-NET Cofund is to build a funded and coordinated R&D program that strengthens Europe’s position in the Blue Bioeconomy. Among the specific objectives of the BlueBio programme is to develop innovative uses of underused material and waste from fisheries and aquaculture to achieve zero waste. As part of the program LP and PP2 have organized an advanced training course: "Blue Bio-refinery technologies: from research to the industry with applications on products and biomaterial from algal biomass and sidestreams of fisheries and aquaculture" held in January 2023 in collaboration with the European Society of Marine Biotechnology (ESMB). This training initiative was related to the general goal of BlueBio ERANET COFUND, i.e. to strengthen Europe’s position in the blue bioeconomy and addresses gaps to finally identify ways of bringing bio-based products and services to the market and find new ways of creating value from in the blue bioeconomy. The methodologies implemented within this training will be shared with project partners and will be use during the activity 3.1 of the BIOBASED proposal.

C.2.7 How does the project build on available knowledge?

Please describe the experiences/lessons learned that the project draws on, and other available knowledge the project capitalises on.

LP will improve and test the innovative IMTA rearing model, performed at a preindustrial level within the EU Remedia Life project (LIFE16 ENV/IT/000343) in the Gulf of Taranto (Ionian Sea), where a new set of bioremediators, such as polychaetes, sponges and macroalgae, coupled with mussels, has been proposed within a fish farm for the first time at the European level.
Morevoer, LP will contribute to analyzing the characteristics of the production systems already present in the Adriatic area in order to identify the aquaculture plants where to test IMTA and transfer the blue biorefinery model (Act 1.1), capitalizing on the experience achieved in the context of Mol.Mul. SOS Project (Sustainable Multritrophic Mussel Culture), a FEAMP Project funded by Apulia Region and led by UNIFG. UNIFG will contribute to transfer and setting up seaweed production systems to enterprises involved in mussel/oysters-based production, generating a switch from conventional aquaculture to IMTA (Act 1.3), capitalizing the results achieved as Partner of B-Blue Project – Interreg Med 2014-2020.
PP2 will bring into the project know how and networks implemented in the frame of the Italian Blue Biotechnology Hub (BBH Italy), developed within B_Blue Project (INTERREG MED), which gathers together national key actors in the field according to a quintuple helix approach: the BBH Italy included a Living Lab dedicated to the co-design, co-implementation, upscaling and transferring of BBt solutions which can be capitalized in the project (act. 3.1). It will also provide its analysis of national/EU regulations on BBt in aquaculture sector and, specifically, the cultivation of algae as well the valorization of by-products: by addressing burdens for the exploitation of marine biological resources, such analysis can support the cross-border capacity building process (act. 3.1) and the development of the action plan foreseen by Act. 2.2 as well as the deployment of Act 1.1, as far as the know-how on the procedures for state property concessions, space planning and identification of Allocated Marine Zones for Aquaculture (AZA) can be used for identifying the production systems to transfer the project model.
PP4 Department of Applied Ecology of the University of Dubrovnik that have experience in different type of projects, will capitalize the INNOVAMARE project that enhancing knowledge transfer between enterprises, R&D centers, HE and the public sector through education and capacity building actions in order to increase the effectiveness of innovation activities in the blue economy.
The references of the INVESTINFISH will be involved during the activity 3.1 during the cross-border events and will be involve in the elaboration and signature of the Memorandum of Understanding that will be implement and adopt during the activity 3.2 of the proposal.

C.3 Project partnership

Describe the structure of your partnership and explain why these partners are needed to implement the project and to achieve project objectives. What is the contribution of each partner to the project?

In order to achieve the objectives of the proposal, it was particularly important to build a partnership, which is a representation of the key players for the development of innovative production process in the field of mussels farm in the Adriatic sites. In detail, the composition of the partnership is structured as follows:

LP - The Department of Agriculture, Food, Natural Resources and Engineering (DAFNE) of the University of Foggia recently qualified as “National Excellence Department” by Ministry of University and Research (MUR), promotes excellence in research and supports innovation in technology, favoring knowledge transfer in tune with the international, national and regional economic system. The STAR*Facility Centre is a technological hub of DAFNE Department specialized on biomass conversion (including also marine biomass) into valuable compounds, biomaterials, fine-chemicals and renewable energy through a biorefinery approach.
PP2 - The main research activities of the Institute for Marine Biological Resources and Biotechnology (IRBIM) relevant for the project span from “smart, circular and sustainable aquaculture, specifically the development of Integrated Multitrophic Aquaculture Systems (IMTA), the testing of innovative and eco-sustainable feeds, the study of the microbiome of farmed fish and the interactions between aquaculture activities and the surrounding ecosystem” to the “study and exploitation of marine microorganisms for biotechnologies applications and bio-prospecting purposes, also for their applications in blue-bioeconomy value chains (i.e. the study of microbial communities associated with polluted environments, environmental recovery and marine depollution, biomonitoring and bioremediation, biosensing for the monitoring of specific compounds, etc.)”. Moreover, CNR IRBIM is part of the National Biodiversity Future Center (NBFC), recently launched within the National Recovery and Resilience Plan as part of the Next Generation EU programme, within which it coordinates Italian research bodies on development of innovative eco-sustainable marine biotechnologies.
PP3 - The AMA has gained expertise directly or through its associates on mariculture techniques, mainly in the sector of breeding bivalve molluscs. Some experiences have turned towards integrated mariculture practices both in the open sea and in lagoon environments. Through this cooperation project, AMA will be able to meet industry experts and university researchers, acquiring new knowledge and new experiences in the field of integrated mariculture and seaweed farming, expanding the possibilities of diversifying the production sector both nationally and in Europe
PP4 - Researchers from the University of Dubrovnik, Department of Applied Ecology (previously department of Aquaculture) have a wealth of experience related to different aquatic ecosystems, as they are experts in biology and biotechnology. This wealth of knowledge centered around bivalve farming is showcased in the University’s Mariculture Laboratory located in Mali Ston Bay - the most productive bivalve production area in Croatia and the largest production site for European flat oyster in the Mediterranean. The laboratory facilities house land-based aquaculture systems mostly related to bivalve farming as well as research laboratories, on-site accommodation and classroom, and a marine concession for scientific aquaculture practices which is currently used for suspended bivalve farming on floating longlines.
PP5 Centre for Entrepreneurship, as an entity, is partner on several national projects that are strictly focused on entrepreneurship. Focus of the Centre is on facilitating local SMEs to achieve competitiveness on the national and global market by positioning their products, as well as collaborating with academic institutions on creating mentoring networks oriented to the ever-changing entrepreneurial needs.
Considering the main mission of each partners, LP, PP2 and PP4 will collaborate in the elaboration of

a model to transfer and to test in the pilot sites, with the support of PP3 and PP5, that will ensure also the transfer of the developed tools to a large number of SMEs of the programme area. The presence of business representatives in the partnership, will facilitate the dialogue between research and business and it will support the transfer of results to all the SMEs in the regions. This partnership is also crucial for the development of a realistic action plan for the development of this market segment, also after the end of the project.
Moreover, thanks to this proposal and the exchange of the know-how between LP, PP2 and PP4, the staff will acquire the skills to develop the action plan jointly after the project end.

C.4 Project work plan

Number	Work package name
1	Developing Integrated Multi Trophic Aquaculture plants (IMTA) and Blue Biorefineries (IMTA-BLUE-REF)
2	Introduction of the biorefinery approach in the acquaculture of the Adriatic area
3	Networking, knowledge transferring and human capacity building

Work package 1

Work package title

Developing Integrated Multi Trophic Aquaculture plants (IMTA) and Blue Biorefineries (IMTA-BLUE-REF)

Objectives

Your objectives should be:

- realistic and achievable by the end of the project;
- specific (who needs project outputs delivered in this work package, and in which territory);
- measurable – indicate the change you are aiming for.

Define one project specific objective that will be achieved when all activities in this work package are implemented and outputs delivered.

The specific objective is to provide a sustainable aquaculture model as solution in dealing with the negative impacts of aquaculture activities. PPs will implement a IMTA systems with the concept of being environmentally friendly and sustainable.

Think about the communication objective that will contribute to the achievement of the specific objective. Communication objectives aim at changes in a target audience's behaviour, knowledge or belief.

The communication objective of this WP is mainly aimed at a dissemination of the project objectives to decision makers, stakeholders and the community. In particular, this will be achieved through the preparation of appropriate press releases, newsletters and other activities identified by the Communication strategy. The target groups of this first communication activities are the main stakeholders, represented by Decision Makers and the SMEs in the field of pilot sites.

Activities

Activity 1.1	
Title	Site and productions systems selection
Start period	Period 1, 1 - 6
End period	Period 1, 1 - 6
Description	Analysis of the characteristics of mussels/oysters production systems present in the Adriatic areas, both Italian and Croatian, in order to identify the production systems where to transfer the BIO-BASED production model. The analysis of the production plants aims to identify the characteristics of the area and of the plants. In

Activity 1.1	
	detail, the production stacks must be located in the waters allowed by the state, must have the mariculture license and must be located in the functional maritime zoning, far from the port, and where there is no pollution around. The selection of the area is a fundamental activity to analyze areas with less wind and not too exposed to the waves, and to understand the flow rate, direction of flow, dissolved oxygen, water depth, and the quality of sediments. After this analysis, PPs will select the farm where to test the IMTA systems. The activity leader is PP2 and all PPs will participate with the collection of data from the pilot sites (Gargano, Chioggia and Mali Ston).
Partner(s) involved	UNIFG, CNR_IRBIM, AMA, UNIDU, CZP

Deliverables 1.1

Running number	Deliverable title	Description	Delivery period
D.1.1.1	Report of the analysis implemented	Report on the analysis of mussels/oysters production systems operating in the Italian and Croatian Adriatic areas and selection of production plants (at least two, one in the Italian coastal zone and one in the Croatian coastal zone) where testing IMTA (M6-CNR)	Period 1, 1 - 6

Activity 1.2	
Title	Identification of macroalgae
Start period	Period 2, 7 - 12
End period	Period 2, 7 - 12
Description	Selection of commercially valuable macroalgae adaptable to identified areas. Macroalgae selection will be based on local species naturally available in selected coastal areas and on their biochemical composition with the aim of identifying valuable end products achievable through the biorefinery process. The DNA barcoding will be used as a key tool for a species-level identification, which is laking for seaweeds. Moreover, the construction of a local seaweed DNA

Activity 1.2	
	barcode library could benefit the use and application of such a bio-resource. The activity leader is PP4 and partner involved are Lead Partner and PP4.
Partner(s) involved	UNIFG, UNIDU

Deliverables 1.2

Running number	Deliverable title	Description	Delivery period
D.1.2.1	Catalogue of macroalgae	Catalogue of valuable autochthonous seaweeds available in the Adriatic Coastal Area and selection of seaweed strains to test in IMTA. (M6- UNIDU)	Period 2 , 7 - 12

Activity 1.3	
Title	Implementation of IMTA systems in pilot sites
Start period	Period 2, 7 - 12
End period	Period 3, 13 - 18
Description	Transfer of mussel/oysters-based seaweed production systems (IMTA) to enterprises. Longlines made of biodegradable polymers, (bio) plastic lanterns and lantern nets containing the selected seaweed strains (Act 1.2) will be integrated with different densities and depth into selected mussel/oyster plants (Act 1.1). The IMTA test will be performed for one year in a parcel of each plant containing at least three horizontal longlines 100 metres long. The seaweed's SGR, grazing pressure, epiphyte's presence, and seaweed biochemical composition will be evaluated during the production period. The effect on environmental parameters (OD%, nutrients, turbidity, pH, chlorophyll, microbiome, etc) will be investigated too. This activity will be in line with the strategic EU aquaculture guidelines, which aim to boost low environmental impact aquaculture, which is identified as the production of low trophic species (micro and macro-algae, non-fed such as filter feeders like molluscs, organic aquaculture and integrated multi-trophic aquaculture (IMTA). The activity leader is LP.

Activity 1.3	
Partner(s) involved	UNIFG, CNR_IRBIM, AMA, UNIDU, CZP

Deliverables 1.3

Running number	Deliverable title	Description	Delivery period
D.1.3.1	Reports of the IMTA executed	A jointly report on the IMTA implemented structured in a description of the activities carried out, the methodology and the main results for each pilot sites.	Period 3 , 13 - 18

Outputs

Output 1.1	
Output Title	Test on the potential of macroalgae in seaweed production through IMTA plants
Programme Output Indicator	RCO81_1.2: Participations in joint actions across borders
Measurement Unit	participations
Target Value	15,00
Delivery period	Period 2, 7 - 12
Output Description	All project partners will participate in the implementation of pilot activities, analysis, selection and testing of selected macroalgae in pilot areas, with a view to defining a joint operational methodology, tested and effective to be able to coexist with other territories of the Adriatic area. The pilot areas are represented by the area of the Gargano and the area of Chioggia on the Italian side and the area of Mali ston in Croatia. All the wp1 activities will contribute to this output result.

Investments

Work package 2

Work package title

Introduction of the biorefinery approach in the acquaculture of the Adriatic area

Objectives

Your objectives should be:

- realistic and achievable by the end of the project;
- specific (who needs project outputs delivered in this work package, and in which territory);
- measurable – indicate the change you are aiming for.

Define one project specific objective that will be achieved when all activities in this work package are implemented and outputs delivered.

To analyse the characteristics for the industrialization of the process, in support of the key potential users identified in the Adriatic area and to identify the actions in the long term to establish a chain of producers and processors.

Think about the communication objective that will contribute to the achievement of the specific objective. Communication objectives aim at changes in a target audience's behaviour, knowledge or belief.

The main objective of the communication activities of this WP is to engage the key stakeholders of the sector and the potential end -users, in order to involve in the valorization process and to identify the key actions of the action plan that it will be jointly developed. To reach this objective PPs will organize dedicated local meetings and will promote the activities through the official website and social channels of the project.

Activities

Activity 2.1	
Title	Valorisation of seaweeds and fisheries/aquaculture by-products with a Biorefinery Approach
Start period	Period 2, 7 - 12
End period	Period 4, 19 - 24
Description	Identification of green technologies for the conversion of co-products and by-products (e.g processing waste etc.) into composite classes of commercial value. Biorefinery approach based on sequential extraction processes will be applied for an integral use of the material. Conventional and unconventional

Activity 2.1	
	extraction techniques (Ultrasounds Assisted Extraction, Microwave Assisted Extraction, etc.) using green solvents will be tested and compared. The yield of target compounds, the solid/solvent ratio, the extraction time, and the extraction temperature will be considered as key parameters for the process efficiency. Sequential (cascade) processes will be tested and optimized. Chemical composition of the extracts and residues (after extractions) will be performed. Moreover, different pre-treatments will be applied on entering raw material to evaluate their effect on the overall cascading process. Phycobiliproteins, lipophilic pigments, proteins, PUFA, polysaccharides, biostimulants and nutrients (NPK) will be the target achievable products from seaweeds and IMTA biowaste. The activity leader is LP with the involvement of PP2 and PP4.
Partner(s) involved	UNIFG, CNR_IRBIM, UNIDU

Deliverables 2.1

Running number	Deliverable title	Description	Delivery period
D.2.1.1	Conversion pathways	Report on the selection of different conversion pathways (at least two) for the valorisation/upcycling of seaweed biomass and IMTA biowaste (M24- UNIFG)	Period 3 , 13 - 18

Activity 2.2	
Title	Production of high value compounds (pigments, biomaterials, biostimulants, proteins, etc.), functional feeds for aquaculture.
Start period	Period 3, 13 - 18
End period	Period 4, 19 - 24
Description	The overall objective of the action plan is to analyse the characteristics for the industrialization of the process, in support of the key potential users identified in the Adriatic area. An analysis of national/EU regulations on Blue Biotechnologies in aquaculture sector and, specifically, the cultivation of algae as well the

Activity 2.2	
	valorization of by-products will be performed: by addressing burdens for the exploitation of marine biological resources, such analysis can support the cross-border capacity building process. Moreover, the action plan will be also focus on development of the product marketing phases through the identification of the market segment. The result of the action plan will be to identify the actions in the long term to establish a chain of producers and processors. (stages quality certification, identification of potential users,). The activity leader is PP2 with the involvement of each project partners.
Partner(s) involved	UNIFG, CNR_IRBIM, AMA, UNIDU, CZP

Deliverables 2.2

Running number	Deliverable title	Description	Delivery period
D.2.2.1	Structure of the action plan on development of the product marketing phases	The deliverable will analyze the main goals of the action plan on development of the product marketing phases through the identification of the market segment and analysis of national/EU regulations on Blue Biotechnologies in the aquaculture sectors.	Period 3 , 13 - 18

Outputs

Output 2.1	
Output Title	Strengthened innovation capacities of SMEs, especially in Blue economy domains
Programme Output Indicator	RCO87_1.2: Organisations cooperating across borders
Measurement Unit	organisations
Target Value	5,00
Delivery period	Period 4, 19 - 24
Output Description	Thanks to the analysis of the industrialization process of the tested approach it will be possible to identify the main market barriers, production processes as well as the potential, market segment analysis, potential users of macroalgae production

Output 2.1	
	(such as pharmaceutical companies d of cosmetics) in order to create a realistic and shared action plan. All WP2 activities contribute to the realization of this output that consist in the elaboration of an action plan jointly developed.

Investments

Work package 3

Work package title

Networking, knowledge transferring and human capacity building

Objectives

Your objectives should be:

- realistic and achievable by the end of the project;
- specific (who needs project outputs delivered in this work package, and in which territory);
- measurable – indicate the change you are aiming for.

Define one project specific objective that will be achieved when all activities in this work package are implemented and outputs delivered.

WP3 tackles the need to build and structure a community of actors with a quintuple helix approach able to address the challenges of IMTA and Blue Biorefinery to generate innovation by showcasing the real business potential inherent in the sector. WP3 deals with this need with a methodology coherently dovetailing a local/territorial approach, a vertical in depth analysis on specific value chains and a transnational coordinated collaboration with a Adriatic vision.

Think about the communication objective that will contribute to the achievement of the specific objective. Communication objectives aim at changes in a target audience's behaviour, knowledge or belief.

The communication objective is to disseminate the outputs and results of the project through a dedicate social campaign to engage the participants to the Living Lab activities, by publishing scientific articles and promoting the action plan and the MoU through partner conferences and detailed press releases. In addition, the communication activities that it will be implement after the end of the project, will also be identified in the communication strategy.

Activities

Activity 3.1	
Title	Cross-borders capacity bulding to create a network
Start period	Period 4, 19 - 24
End period	Period 4, 19 - 24
Description	The overall development methodology is based on a collaborative territorial approach to create an appropriate space for the interaction of communities with different knowledge and interests to reach a critical mass for the Blue Bioerefinery sector, to generate innovation and transfer it to

Activity 3.1	
	business. This activity implements a participatory process aimed at bringing together universities & research centres, companies, public authorities, intermediaries and local communities to design and develop community' needs based innovative services /tools through transnational networking and crossborder knowledge exchange. Activities that could be implemented are: events to create a network (first part of the project: one in Croatia and one in Italy and an intermediate one) through the involvement of producers in the Croatian and Italian area; 4 Living lab with the involvement of key stakeholders of the sector in the operational area of the project proposal. (two in Italy and two in Croatia). The activity leader is PP2.
Partner(s) involved	UNIFG, CNR_IRBIM, AMA, UNIDU, CZP

Deliverables 3.1

Running number	Deliverable title	Description	Delivery period
D.3.1.1	Report of the Living Lab	The report will be structured according to the following scheme: list of participants, program of the event, photos, presentations of the speakers, satisfaction questionnaires, minutes and conclusions on the results achieved that collect the recommendations emerged during the activity.	Period 5 , 25 - 30

Activity 3.2	
Title	Memorandum of understanding to adopt the action plan
Start period	Period 4, 19 - 24
End period	Period 4, 19 - 24
Description	A multi-lateral MoU will be developed by Project Partners based on the results of the activities 2.1,2.2 and 3.1 in order to transfer the innovative approach implement to the other potential users of the programme area. Moreover, the aim of the MoU it will be activated a consultation process to regional level to influence the future regional policies in order to align it with the main objective of the European

Activity 3.2	
	Strategies that the proposal will contribute. Each project partner will organize a consultation process with the regional references to jointly identifies the contents of the memorandum, collecting the recommendations of SMEs, stakeholders and Decision makers, in order to prepare a cross-border memorandum for the implementation of the Action Plan developed during the project activities. Moreover, project partners will promote the final draft through the communication channels (social, one press release per partner, newsletter).
Partner(s) involved	UNIFG, CNR_IRBIM, AMA, UNIDU, CZP

Deliverables 3.2

Running number	Deliverable title	Description	Delivery period
D.3.2.1	Shared model of the memorandum of understanding jointly developed	The report will be structured according to the following scheme: list of participants of the events, photos, minutes and conclusions on the results achieved that collect the recommendations emerged during the activity and final draft of the MoU.	Period 5 , 25 - 30

Activity 3.3	
Title	Final conference and workshops to present the project results.
Start period	Period 5, 25 - 30
End period	Period 5, 25 - 30
Description	The final conference will be organized by the University of Foggia, in collaboration with all project partner and will be an important opportunity to present to the community and key stakeholders the project results and to promote the MoU developed by the activity 3.2. The objective, in addition to the presentation of the results, is to emphasize the action plan developed through the signing of a joint protocol between the partners for the adoption of it. In addition, the protocol will be drawn up in an open form, so that the participation of other SMEs, Decision Makers and stakeholders can be foreseen

Activity 3.3	
	in the future. All project partners will participate with its regional and public references at the final conference. Moreover each project partner will preparare a press release to promote this final events in coordination with the JS. During the event project partner will discuss about the future of the Action plan and the methodology of their cooperation after the project activities.
Partner(s) involved	UNIFG, CNR_IRBIM, AMA, UNIDU, CZP

Deliverables 3.3

Running number	Deliverable title	Description	Delivery period
D.3.3.1	Report of final conference	The report will be structured according to the following scheme: list of participants, program of the event, photos, presentations of the speakers, satisfaction questionnaires, minutes and conclusions on the results achieved that collect the recommendations emerged during the activity.	Period 5 , 25 - 30

Outputs

Output 3.1	
Output Title	Transfer to SMEs the knowledge and tools developed
Programme Output Indicator	RCO04_1.2: Enterprises with non-financial support
Measurement Unit	enterprises
Target Value	60,00
Delivery period	Period 4, 19 - 24
Output Description	Small and medium enterprises will be directly involved in four activities, the testing phase of the IMTA plants, the consultation phase for the valorization process, the living labs and the signature of the mou. This participation process will be detailed in this output which will represent the guidelines for the replicability of these activities in other territories.
Output 3.2	
Output Title	Adoption of the Memorandum of Understanding for the implementation of the Action Plan jointly

Output 3.2	
	developed
Programme Output Indicator	RCO87_1.2: Organisations cooperating across borders
Measurement Unit	organisations
Target Value	25,00
Delivery period	Period 5, 25 - 30
Output Description	The output consists in the MoU signed by the relevant Decision Makers, FLAGs, Key Stakeholder, SMEs, and project partners. MoU will identify and present the identified obstacles and opportunities of companies, the funding funds available for the implementation of these activities, the contribution necessary to intercept and develop in the Adriatic area the market segment in question and a part of analysis on current supply and demand in the market.

Investments

C.5 Project Results

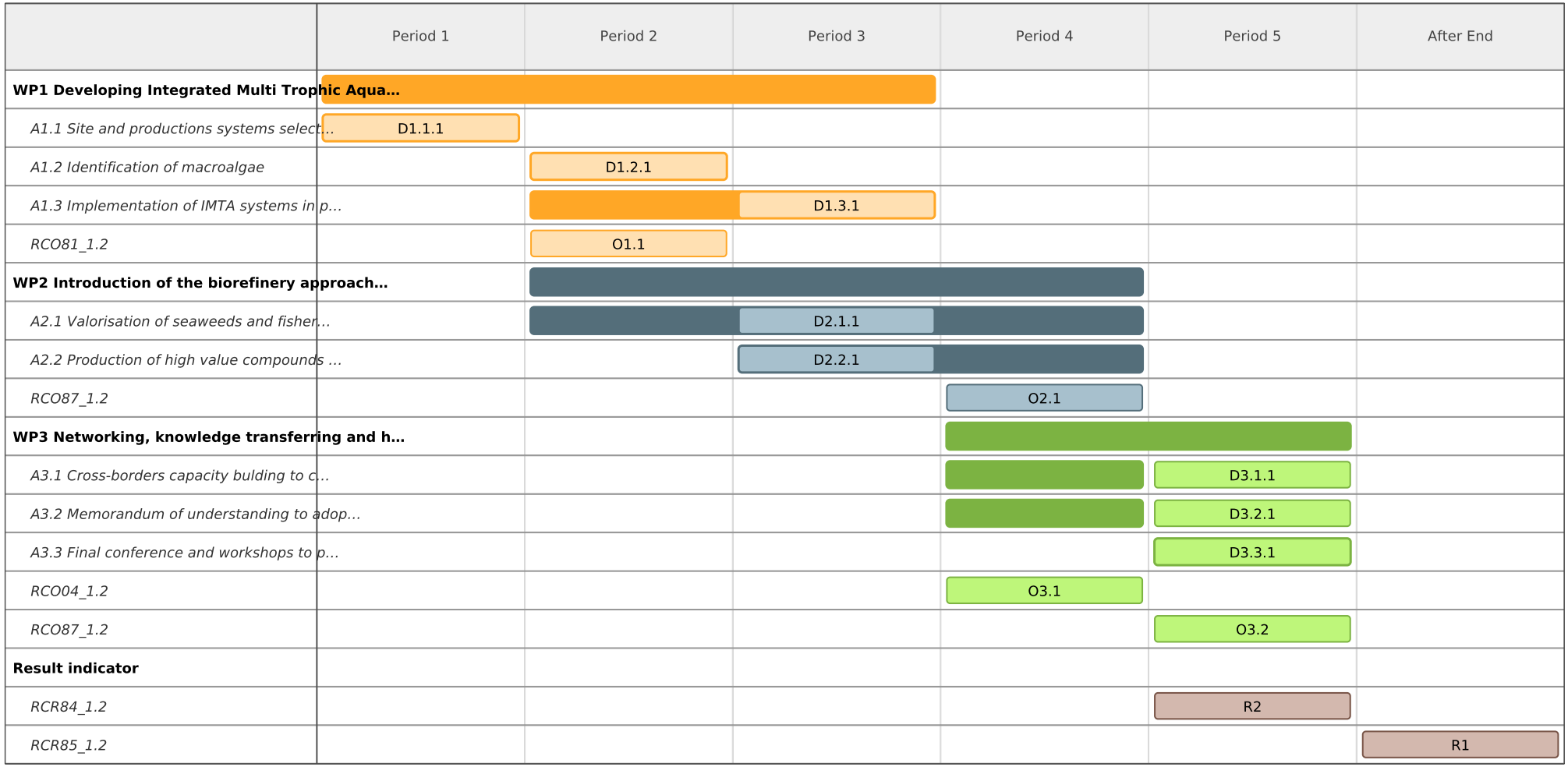
What do you expect to change because of the activities you plan to implement and the outputs you plan to deliver? Please take a look at the programme result indicators and select those that you will contribute to.

Result 1	
Programme result indicator	RCR85_1.2: Participations in joint actions across borders after project completion
Measurement unit	participations
Baseline	0,00
Target value	5,00
Delivery period	Period 255, -
Result description	This results is linked to the Output 2.1. In detail, the project partners will continue to cooperate after the end of the project to continue implementing the actions set out in the action plan. In detail the objective will be to intercept other national and European funds for the realization of an Adriatic supply chain of products made by farms in the sector to support them in the introduction of these products in the global market, in order to contribute not only to the sustainability of the production process for the marine ecosystem, but also to the economic and social sustainability of the pilot sites identified by the proposal. To reach this results, project partners we will jointly organized a cross-border training schemes after the project end to present the first phase of this process to accompany the SMEs and decision makers to structure the Adriatic supply of the products in the global market.

Result 2	
Programme result indicator	RCR84_1.2: Organisations cooperating across borders after project completion
Measurement unit	organisations
Baseline	0,00
Target value	25,00
Delivery period	Period 5, 25 - 30

Result 2	
Result description	This results is linked to the Outputs 3.1 and 3.2. According to the MoU shared and adopted by project partners, SMEs and key stakeholders it will be established a network among them for the sharing of good practices, results, possibility of new financing for the implementation of other joint projects in the field of Sustainable aquaculture in the Adriatic area. Moreover, the partners will commit themselves to meet each other in order to support and evaluate the progress beyond the project of the activities implemented. In addition, the partners will promote participation in national and international events to promote the results of the project and the network created thanks to synergies with other EU project and collaborations that will be activated through the proposal BIO-BASED. The MoU will also support the definition of a discussion table for the definition of economic aspects and common objectives for overcoming market obstacles.

C.6 Project Time Plan



C.7 Project management

In addition to the thematic work you will do in your project, you will need time and resources for coordination and internal communication. Please describe below how you plan to organise yourself to ensure the project work runs smoothly.

C.7.1 How will you coordinate your project?

Who will be responsible for coordination? Will you have any other management structures (e.g., thematic groups, WP managers)? How will the internal communication work?

The management structure will be set up to coordinate the full implementation of the activities of the project. It will allow a continuous monitoring of the project at different levels, to guarantee optimization of the involved skills and expertise, ensuring that activities and actions performed comply with the objectives of the project. LP will ensure the day-to-day coordination of the project implementation, being in contact with partners. Each partner will manage their specific project activities to ensure the implementation of the project according to agreements made during project. The Coordination and management Group or Steering Committee (StC) will be composed by at least one or more representative per partner. Each Partner'StC member will ensure the project management, the project reporting and financial management and secretary according to the project coordination realised by LP. A devoted Technical Management Group (TMG) coordinated by LP and PP4 will be instituted in order to coordinate the implementation of technical activities of the project. The implementation of management activities will be ensured throughout the duration of the project. Steering Committee meetings will be periodically organized online to check the development of the planned activities to reach the intermediate and final objectives, in line with greener principles. Particularly, BIO-BASED proposal has an already mature process of coordination and management of its activities. The kick off meeting (KoM) is planned to be held in presence in Foggia at the beginning of the project, during which general rules of cooperation will be defined and shared. Moreover, at least 1 online meetings at month online will be scheduled to verify the implementation level of the project activities, also in financial terms and, in addition, three project meeting will be organized during the cross-border events.
Moreover, LP will guarantee the quality of the internal communication organising, if necessary, bilateral or project meetings to solve eventual problems and to make the state of the art of the project. Moreover, each project partner will identify a Communication Manager that will ensure the correct level of contacts between partners, stakeholders and the implementation of communication activities foreseen in BIO-BASED.
Furthermore, LP will lead the reporting process activities (preparation of intermediate Project Progress Reports and final Project reports) and the financial management of BIO-BASED ensuring a constant monitoring of expenses level according to the budget, implementing at the same time a gap analysis. Partners will allow this reporting phase through the realization of their partner progress reports for project periods. Considering the specialization of the activities the partners will be leaders of single activities in collaboration with the project partners, as specified in the plan of activities.

C.7.2 Which measures will you take to ensure quality in your project?

Describe specific approaches and processes and responsible partners. If you plan to have any type of project evaluation, please describe its purpose and scope here.

The project methodology approach will emphasize the cross-border nature of the project. It will be based on a strong cooperation dimension, ensuring synergies and competencies of partners in line with project objectives and involving a diversified mix of innovative stakeholders and on the implementation of innovative sustainable energy governance solutions between Italy and Croatia.
A strong activity of coordination will take place with the contribution of the whole partnership headed by University of Foggia. In addition to physical meetings (KOM, dissemination events and final meeting), periodical online meeting will be held to monitor project progresses and to identify criticalities arisen during the activity's deployment. Given the specific skills of each partner, each of them has been identified as Activity leader of some activities, this will ensure the complete execution of all tasks required to attain the desired standard, especially for technical, communication, administration, and financial activities during the whole duration of the project. Reporting of the project progress will be also effectively realized by coordination of the partners towards Management Authority and Joint Secretariat of the Programme.
In order to ensure that the realization of all deliverables and outputs foreseen in the project is correct and free of defects and focus on quality from the beginning to the end of the project, an analysis of variances and gaps will be made by LP with the contribution of project partners. Starting from the beginning, this will allow the identification and correction of eventual defects saving time for the implementation of activities. This phase will also ensure a process of identification of potential project risks (LP will prepare a risk log document to highlight opportunities and threats) in order to emphasize or mitigate them with proper on time solutions.
Finally a document on lessons learned after project phases and at the completion of the project will be realized by LP together with PPs: this document will evaluate the consortium's processes and 'bake' all the improvements into the project blueprint and translate them to future projects with particular regards to the next call for proposal for ordinary project of Italy-Croatia Programme.

C.7.3 What will be the general approach you will follow to communicate about your project?

Who will coordinate project communication and how will he/she ensure the involvement of all partners? How will the communication function contribute to transfer your project results? Please note that all communication activities should be included in the work packages, as an integral part of your project. There is no need to repeat this information here.

The overall communication strategy of BIO-BASED will be planned through the realization of an Communication strategy, focused to the aim of the project, the characteristic of the actions expected and of the different targeted groups. This plan will be led by the Communication Manager of the LP together with the PPs counterpart to guarantee the coherence of the whole communication aspects and to keep the whole strategy and activities attractive to the stakeholders.
Each PP is equally responsible to ensure the adequate promotion of the project. The target audience will differ depending on the nature of the message to be communicated and appropriate tools will be used to reach and engage each audience: local public administrations, media and opinion makers, policy makers, SMEs, NGOs/associations and general public.
The promotional and dissemination measures, and more in general all communication activities of BIO-BASED, will be in line with indication of the communication strategy and will use project logo provided by the Programme.
Considering the higher impact of social media and digital technologies, special attention will be given to these means of communication instead of printed materials, that will be used wisely and if necessary, in order to respect nature and the environment. Particular importance will be given to the use of the project website (provided and hosted by the Programme) for which partners will create various contents in terms of news or other uploadable material useful to spread project results. A BIO-BASED project Facebook will be also created (it will work in synergy with the project website), and it will allow a further spread of project activities and letting stakeholders to be kept up with project progress. Each project partner will prepare and send their contributes in order to homogenize the whole communication strategy in line with the communication strategy.
In general, all project activities and events (such as meetings, workshops, etc.) will be also properly communicated thanks to specific communication activities detailed in the WP1 sections. In general, all the communication activities will respect the greener principles. In detail, to avoid the printing of useless material the main deliverables will be produced in a detailed digital version and a reduced version without colors, adapted for printing.

C.7.4 How do you foresee the financial management of the project and reporting procedures for activities and budget (within the partnership and towards the programme)?

Define responsibilities, deadlines in financial flows, reporting flows, project related transfers, reclaims, etc.

BIO-BASED, through the experience of the LP aims to ensure a sound management and coordination of the project concerning both the overall project management and all the aspects linked to the reporting and financial management.
In particular, the financial and administrative management of the project (expenses management, payment management, budget monitoring management, reimbursements procedure, public procurement documents preparation, preparation of statement of Expenditure reporting on the costs incurred, preparation of supporting documents) will be lead and ensured by the appointed financial manager of the LP with the support of PP's financial managers that will work in constant collaboration with the project management and with the StC.
A periodic analysis of the financial progress of the project will be made by the LP with specific internal monitoring tool aimed to avoid overbudget situations. Moreover, LP will provide a previous check of the partner's reported expenditures before the related submission to the FLC to verify the correct allocation of costs in the related budget lines.
In general, at reporting level, partners will prepare their partner reports duly on time in order to give the possibility to merge all information and to prepare the Project Progress Report in line with Programme deadlines and then also collaborating closely with the first level controllers.
The Department as leading as Lead Partner of the project will ensure the proper transfer in time of ERDF which corresponds to each PP, including the national co-financing (Fondo di Rotazione) for the Italian PPs entitled to it. LP will make sure that no amount will be deducted or withheld and no specific charge or other charge with equivalent effect will be levied, avoiding the risk of reduction the due amounts for the PPs.

C.7.5 Cooperation criteria

Please select all cooperation criteria that apply to your project and describe how you will fulfil them.

Cooperation criteria		Description
Joint development	Yes	Several online meetings were held in collaboration with the partners, coordinated on the Italian side by LP and on the Croatian side by PP4. This has allowed a clear vision of the objectives and results to be achieved in line with the programme result indicators.
Joint implementation	Yes	All partners will contribute to the implementation of the project and following a joint common spirit. In particular each PP indicated a representative of it that will participate in the common organization and coordination leaded by LP.
Joint staffing	Yes	The representatives of each project partners will be engaged as members of single project team within the same project in a common vision granted a smooth and easy cooperation between partners. There are not duplication of functions on either side of the border and project team members work together.
Joint financing	Yes	The budget of Project BIO-BASED is divided between partners according to the activities carried out by each of them. The LP is responsible for administration and distribution of reimbursement coming after reporting and certification procedures.

C.7.6 Horizontal principles

Please indicate which type of contribution to horizontal principles applies to the project, and justify your choice.

Horizontal principles	Type of contribution	Description of contribution
Sustainable development	positive effects	The partners will encourage the application of green public procurements, will organize joint meetings online and will give preference to environmentally friendly mobility options, will use recycled materials for the conference materials and will opt for on line materials. In addition, the project will have a direct impact on sustainable development and environment since it will produce a framework through which project partners will be able to identify environmental risks and potential ways of tackling them. All these activities will consider the sustainable development of the pilot locations.
Equal opportunities and non-discrimination	positive effects	This project aims to promote the equal opportunities and principles of non-discrimination, already respected by the partnership in their activities, by preventing any discrimination form based on sex, racial or ethnic origin, religion or belief, disability, age or sex orientation during the implementations of activities
Equality between men and women	positive effects	In every step of the selection of experts, will be respected the principle of equality between men and women by ensuring their integration in the project.

C.8 Long-term plans

As a programme, we would like to support projects that have a long-lasting effect in the territory and those who will benefit from them. Please describe below what you will do to ensure this.

C.8.1 Ownership

Please describe who will ensure the financial and institutional support for the outputs/deliverables developed by the project (e.g., tools), and explain how these outputs/deliverables will be integrated in the work of the institutions.

With the adoption of the MoU the project partners together with the main stakeholders, the FLAGs, the SMEs will be committed to the implementation of the action plan for the promotion of the implemented process in the market. This process will be supported by the commitment to participate together with other joint project proposals for the implementation of the planned and jointly developed actions. Moreover, considering that the results of the project will be in line the Italian and Croatian national strategies in the field of the sustainable aquaculture, all project partners will have the financial support to develop the outputs and will ensure the integration of the output in the work of their institutions. The FLAGs and SMEs that it will be involved will adopted with the signature of MoU the Action Plan in they missions objective and their activity regarding the promotion of the sustainable aquaculture. The financial support will be also ensure by different european funds that have in its priority axis the development of the sustainable production in the Adriatic Sea, at cross-border, national and regional level.

C.8.2 Durability

Some outputs/deliverables should be used by relevant groups (project partners or others) after the project's lifetime, in order to have a lasting effect on the territory and the population. For example, new practices in urban transport need to be used by local authorities to have cleaner air in the city, and the whole population will benefit from this. Please describe how your outputs/deliverables will be used after the project ends and by whom.

In line with the "National Strategic Plan for aquaculture"in Italy and with "A Vision and Roadmap for the Strategic Transformation of the Aquaculture Sector 2020-2030" in Croatia, the objectives of which are to be implemented and/or strengthened under the new programming, the results of BIO-BASED will support the promotion and sustainable development of marine and freshwater aquaculture, for the breeding of aquatic animals and the cultivation of aquatic plants, for the production of foodstuffs and other raw materials.
Therefore, with a view to sustainable aquaculture, like small-scale artisanal fishing, which carries out its activities close to coastal marine areas, and in line with the Strategic Plans of both nations, the proposal will have a positive effect and durability over time on the economy of coastal communities, encouraging the development of new eco-sustainable production practices, enhancing socio-cultural traditions and encouraging the employment of young people and women in supply chain activities (production-processing-marketing). Moreover, the main output of BIO BASED project will be publicly available and free of charge on an already existing, active and populated platform (Marina Platform, https://www.marina-platform.eu/login), so that they can be freely accessed after the end of the project. The Marina Platform, used also by the Blue Growth Horizontal Project of the Interreg-Med Programme, hosts several communities and has a long term perspective plan of development and management.

C.8.3 Transferability

Some outputs/deliverables that you will deliver could be adapted or further developed to be used by other target groups or in other territories. What will you do to make sure that relevant groups are aware of your outputs/deliverables and are able to use them?

The outputs of WP1 and WP2 will be transferred to other territories thanks to all the activities of WP3 that include participation activities and the signing of the Memorandum. This will act as multiplier and will promote the valorization and replication of project outputs
In addition, through EMFF calls for proposals encouraging investments aimed at the sustainability of production activities such as diversification of production, innovative farming practices and low energy consumption, the provision of environmental services and land and nature management, the development of circular economies, the other territories will have the resources to implement the outputs of the project. In addition, measures will be promoted in different national and european programme to rationalise the procedures for hygienic and sanitary classification of farmed water and the introduction and use of new equipment with low environmental impact to reduce waste plastics, micro and nano-plastics, as well as the quantification of the impact of production on the environment. Moreover, thanks to the synergies active during the implementation of the proposal, the outputs will be promoted at regional and national level.