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FUTUREbio

Project Quality Assurance Plan

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REVISION SHEET

Version	Date	Author (Partner/Person)	The revision reason
0.1	14.02.2022	Arzum IŞITAN (PAU)	First draft that forms the plan

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1. Introduction

This Plan provides an overview of the main Quality Assurance (QA) procedures set up by the FutureBio project consortium. QA will measure and assure the quality of the project's processes, outputs, results, deliverables, and impacts in order to:

- deliver value to the target beneficiaries,
- fulfil the requirements of the providing grant support,
- operate in an efficient and timely manner, and
- assist in the strategic-decision making during and after project lifetime.

The quality of the FutureBio project is to a large extent guaranteed by the quality of the partners, as well as the quality of the project work plan. However, close monitoring of the project quality at different phases of its implementation is felt to be crucial for its success.

FutureBio is a two-year KA220-HED-Cooperation Partnerships in Higher Education project supported by Turkish National Agency, on biopolymers between nine partners from Turkey and EU. The FutureBio project which provides information about bioplastics and production methods and will carry out awareness studies with new innovative training materials is the first project in the field. FutureBio is divided into phases in order to maximize efficiency by establishing quality standards, including project implementation, widespread impact, dissemination, and sustainability of the project from the project preparation phase. The project implementation phases are characterized by activities, products, and quality indicators.

FutureBio has five work packages/phases categorized into four management levels for the purpose of to benefit from innovative practices among university students, academic staff, industry workers and the society, and to increase the competencies of academics and students with on-site training:

- Management Level- Phase1: Management
- Operation Level- Phase2 and Phase3: Curriculum preparation including needs analysis, company visits and survey applications, report preparation; creation of interactive open-access education modules, lecture guidebook, and VR exercises.
- Dissemination Level- Phase 4: Dissemination and sustainable implementation of the products
- Monitoring and Control Level- Phase5: Quality Control and Monitoring

Quality Plan will include detailing procedures, criteria and resources will be agreed by all partners. This document is prepared based on information obtained from the following documents:

1. Erasmus+ KA220-HED Project Proposal for "Let's use biodegradable plastic for the future",
2. Partnership Agreement,
3. Guideline for the Use of the Grant for Grants Awarded in 2021 under Call — EAC/A09/2021.

2. Quality Indicators

FutureBio has "Quality assurance of the products" phase which includes:

- Quality plan
- Quality report
- Meeting evaluations
- Interim Evaluation
- Testing Evaluation

- Final Evaluation

A Quality Plan will be prepared and shared before starting the project by the coordinator. At the first Transnational Meeting (M1), it will be discussed and necessary corrections will be made. Quality Plan will include detailing procedures, criteria and resources will be agreed by all partners. The Partners will use indicators to measure on a regular basis the rate of success of foreseen results using quality plan: to ensure that the project outputs follow the specified standards to enrich all training and testing activities with quality standards to provide a final project validation report. At Table 2.1, it can be seen all project activities and their quality indicators:

Table 2.1 Quality Assurance Matrix

Project Process	Period	Quality Assurance	Standard Inputs Include
Project management	1-24th m	"Project Management and Implementation" is the framework of the project where all the activities, correct timing, Project quality, functioning, all materials to be used from project results to dissemination activities will be planned and checked during the entire project. ➢ Set up management and communication platforms, definition of milestones (1-3rd m) ➢ Preparation of project's contracts (1-3rd m) ➢ assurance of project coordination and organization of activities, ensuring the provision of project documents (1st-24th m) ➢ organizing technical trips to local plastic companies ***Quality Indicators:*** ➢ Partnership evaluation surveys, ➢ Meeting evaluation surveys, ➢ Number of activities, ➢ Number of activities attended by project partners.	Management plan, Management platform, Interim report, Final report Minutes of meetings TPM participant lists Partnership Agreement Partnership Evaluation surveys Meeting evaluation surveys Number of activities, Number of activities attended by project partners
Consultation Process	1-24th m	In Phase 2 (PR1), it will be prepared national and international reports which will include situations and needs analyses for academics, students, and companies. At the same time, these analyses will reveal awareness situations for individuals and institutions. For this purpose, each university will apply the survey studies to be prepared at the beginning of the project to its academic staff, graduate, and undergraduate students. They will apply these surveys to at least 5 academic staff and 10 students. Since we are 6 universities as a project partnership, we aim to apply these surveys to 30 academicians and 60 students in	Survey for academicians Survey for university students Survey for industrial workers National reports International report Training programs Activity evaluation reports Attendance lists Pilot testing survey Pilot testing of online materials and guide books Final testing survey

		total. Each university will make the choice of people to be surveyed. In Phase 2, each project partner will try to find companies producing plastics and BDP production locally and nationally and create a portfolio. By contacting at least 3 companies for each partner, they are expected to complete these needs analysis surveys. In this way, we expect to be in contact with at least 24 companies. After those of working will be done as national and international reports, we will determine the educational needs. In Phase 3, It is planned to open 2 courses on BDP in the Technology Faculty of PAU and within the scope of The Graduate School of Natural and Applied Sciences. In accordance with the curriculum, in the second year of the project, educational activities will be carried out in these courses. Students who will take these courses will be given an awareness survey at the beginning of the semester and the level of awareness will be changed by repeating the same survey at the end of the semester. At least 50 students are expected to take these courses. Students, who take these courses, will be provided with the interactive learning materials, laboratory videos, and Lecture Guide Book prepared to test and return in a format that will be determined. -In addition, all of the partners will receive feedback from at least 5 academics/ scientists regarding the modules and the book to be prepared. Thus, the opinions of at least 40 professionals in total will be received and used in the revisions of the relevant tools/chapters. ***Quality Indicators:*** Number of prepared questionnaires Number of academic and university students surveyed	Evaluation reports
Training process	10-18th m	This project has been prepared in accordance with the European Union's strategy of developing cooperation, increasing quality, and encouraging innovation in the learning activities of individuals and groups in the field of education and training. The project aims to make the use of innovative practices among university students, academic staff, industry employees, and the community and to increase the competencies of academics and students with in-place training.	Signature Lists of trainees and trainers

		During the project, mutual information transfer, know-how, and brainstorming are carried out, and the partnership will be more efficient. It will develop its scientific knowledge related to the BDP through the training activity(C1) for the project staff. Therefore, we aim for the project partnership to develop itself in innovative education technologies. Thus, the potential of using these technologies in new projects will also be increased. C2, a short-term student training activity, will be held in IT on the 18th month of the project. 33 students and 6 accompanying people from all partner universities will participate in this activity (8+1 from PAU, and 5+1 from other partners). ***Quality Indicators:*** Number of academicians Number of students Number of surveys Number of activities	
Dissemination and sustainable implementation of the products	1-24th m	Dissemination materials, activities, the number of people to reach, and their expected impact will be the following: 10 webinars will be organized through the project website. Newsletters will be prepared every six months. 7 National Informative Meetings and 1 Workshop (E1-E8) will be organized. Some review papers will be published in highly ranked international journals. Within the participation in various conferences, it is planned to distribute approx. 1000 brochures prepared by PAU and all partners, and it is expected to reach 1000 people via website, social media, press/media. At least 285 people are expected to attend national informative meetings. FutureBio has a workshop which will be held by KLU at least 65 local participants. Earth day STEM challenge activities will be organized to reach at least 350 young people with activities at the secondary and high school level, which will be held locally in each country. For university students, various activities will be organized: A poster competition will be organized. Social responsibility movements such as collecting plastics etc. will be initiated in the form of a zero-plastic day.	Dissemination plan Sustainability plan Website Social media platforms Logo Newsletters Brochure Attendance lists Webinars Number of posters the Layman's Report Informative meeting reports

		We expect to organize at least 3 organizations/activities in each national network. eTwinnig, Erasmus+ Project Results Platform, and EPALE platforms will be used for the dissemination, also. the Layman's Report will provide a general and brief overview of the project and its outcomes, such as the challenges faced by the project, the proposed solutions, the innovative aspects of such solutions, the main achievements and outputs, the main results of the implemented pilots or recommendations for future. ***Quality Indicators:*** Number of clicks Number of leaflets distributed Number of newsletters sent Number of oral presentation and scientific papers Number of activities Number of download and number of distributed books İnformative meeting reports	
Development of Lecture Guidebook	6-23th months	Most of the current scientific books in English are focused on biopolymer chemistry, their physical properties, nanocomposites, their applications especially in medical or environmental areas. Moreover, there are very few books on biodegradable plastics and their applications. On the other hand there isn't any course book in Turkish related biopolymer technology. The guide book, which will contain examples from the project partners' works and industry applications, is innovative in this respect. It will be a book that people from different disciplines can use according to their interests. It is planned to open 2 courses on biopolymers in Technology Faculty of Pamukkale University and within the scope of the The Graduate School of Natural and Applied Sciences. In accordance with the curriculum, in the second year of the project, educational activities will be carried out in these courses. At least 50 students are expected to take these courses. Pilot applications will be performed between 17th-18th months of the Project. Students, who take the courses, will be provided with the interactive learning materials, laboratory videos, and Lecture Guide Book. In addition, all of the partners will receive	Survey for academicians Survey for university students Survey for industrial workers Book chapters

		feedback from at least 10 students and 5 academics/scientists regarding the modules and the book. Thus, the opinions of at least 40 professionals in total will be received and used in the revisions of the relevant chapters. To close an important interdisciplinary course material gap in Turkey and Europe and to contribute to the literature, development of environmental awareness, to encourage biodegradable polymers to be included in the study and research topics of students, academicians and industrial companies, raising awareness about sustainable environment and decarbonization is among the aims of this work package. This project result will highly impact on all target groups, and it has high potential of dissemination and transferability. ***Quality Indicators:*** Number of chapters Number of downloading Number of surveys Providing 90% and above satisfaction from the results of the inter-partnership surveys regarding the quality of the project result (thus determining the problems and collecting the solution suggestions)	
Development of open access education materials and VR tools		There are no online modules prepared on experiments for the laboratory applications at university level. However, laboratory works are especially helpful to gain the knowledge and skills to make scientific evaluations about the synthesis, properties, and applications of biodegradable polymers. Production from different materials and characterization of biopolymers will be the main video topics. Within this result, it is aimed to create innovative technologies based on e-learning and mobile learning tools with interactive videos and animations in game format. The materials will be structured according to a competency-based learning approach (PR1). The use of e-learning technologies in the FutureBio project can provide new opportunities for learners increasing flexibility, motivation and engagement. ***Quality Indicators:*** Number of students attend the pilot application Number of academics attend the pilot application Number of online tools Number of created videos	Surveys Laboratory videos Interactive tools VR tools

		Number of VR tools Number of tools to be changed Providing 90% and above satisfaction from the results of the inter-partnership surveys regarding the quality of the project result (thus determining the problems and collecting the solution suggestions)	

Qualitative and quantitative indicators will be used in overall project management:

Quality of Project management arrangements

– no more than 20% rate of delays in delivering results throughout the project Effectiveness of coordination by the project coordinator

– no more than 20% rate of issues and problems detected in coordination

Effectiveness of the monitoring and evaluation processes

– 100% of partners and coordinator compliance with quality monitoring process tasks.

Effectiveness of quality arrangements

– 100% rate of compliance with recommendations and amendment according to the problems detected.

Qualitative and quantitative indicators will be used in Project Results:

In order to see the effectiveness of developed online modules, the pilot study was added to Project. With this regard, the project team and the users will be in constant contact and feedback will be provided. In order to achieve expectations, the definition/monitoring of specific project indicators will be used. In order to be more useful for the book, literature work and interviews will be made. In order to measure the quality and progress of the project as well as its success, quality indicators have been determined for each work package of the project and summarized below:

Phase 1: Partnership evaluation surveys, Meeting evaluation surveys, number of activities, number of activities attended by project partners

Phase 2: number of students, academicians, industrial workers, firms answered surveys

Phase 3: number of students and academics attend the pilot applications, number of online tools and videos, number of tools to be changed, number of book chapters

Phase 4: number of participants attend seminars / informative meetings / workshop / webinars, number of website visiting, number of distributed newsletters / brochure, number of audience of seminar / congress

Phase 5: covers all the above-mentioned indicators to ensure the quality of the whole project. Providing 90% and above satisfaction from the results of the inter-partnership surveys regarding the quality of the project result (thus determining the problems and collecting the solution suggestions)

3. Management Quality Control

Quality assurance of the products will be valid for whole project term. During the project, 5 TPMs will be organized. 89 staff from all partners in total will attend those meetings. Participants are the permanent staff of the partner institutions who will take an active role in the project.

It is planned to prepare 5 transnational meetings every 6 months to monitor project progress and ensure that responsibilities are distributed properly:

- M1, Kick-off meeting: It will be held in Denizli/TR on 01-2022 organized by PAU. 17 attendees are expected from all partners. This meeting is very important to communicate and work together. The purpose and objectives of the project will be clearly laid out in order to ensure that tasks are shared properly both throughout the project and especially during the first 6 months. Draft Quality and dissemination plans prepared by PAU will be discussed at this meeting. The activities expected to be completed in the first 6 months will be on the agenda. Especially "Innovative Course curricula (PR1)" will be discussed. For situation analysis, surveys, report formats which will be prepared by PAU, COSVITEC and CNU will be discussed and finalized. The draft mobile application contents and the platforms used for creating these tools will be discussed. SUPSI will support us in this task. Since the mobile application content by considering the results obtained in PR1 and by performing the needs and shortcoming analysis, it has to be done before the 2nd TPM. The online platform which has to be done will be argued, also. Decisions taken at the meeting will be shared with all partners as the 1st minor report.
- M2, 2nd TPM: It will be held in FI on the 6th month of the project (6-2022) organized by CTRL 18 attendees are expected from all partners. The activities expected to be completed in the first 6 months will be discussed. The national reports will be discussed and analyzed, also. The partnership will present the curriculum's final form. These analyses and curriculum will form the basis of PR2, PR3, and PR4. The results of PR1 and the preparation of PR2, PR3, and PR4 will be discussed. For PR2, online modules will be shared between all the partners. Providing preliminary information to the Project staff about the creation and use of online materials and videos will be organized by PAU. SUPSI will support us in this task. C1 training and the tasks related to the second six months will be discussed. Decisions taken at the meeting will be shared with all partners as the 2nd minor report.
- M3, 3rd TPM: It will be held in Naples, IT on the 12th month of the project (12-2022) organized by COSVITEC. 18 attendees are expected from all partners. The activities expected to be completed in the first year and the coming tasks for the third six months will be discussed. The evaluation of C1 activity will be negotiated. The progress of PR2, PR3, and PR4 will be discussed. The plan of C2 will be talked about in detail. Pilot testing of online materials and guide books will be argued. The decisions taken at the meeting will be shared with all partners as the 3rd minor report.
- M4, 4th TPM: It will be held in Regensburg, Germany on the 18th month of the project (06-2023) organized by CNU. 18 attendees are expected from all partners. The activities expected to be completed in 18 months and the tasks related to the fourth six months will be discussed. The progress and revisions of PR2, PR3, and PR4 will be discussed. C1 and pilot applications will be evaluated. And the planning of the "E8-International workshop" activity which will be held in Kırklareli will be negotiated. The organization of E1-E7 will also be discussed. The decisions taken at the meeting will be shared with all partners as the 4th minor report.
- M5, Final TPM will be held in Kırklareli, Turkey on the 24th month of the project (12-2023) organized by KLU. 18 attendees are expected from all partners. All Project activities and E7 will be evaluated. The results of Quality and dissemination plans will be discussed at this meeting.

All activities completed in project time-schedule will be discussed. All project results will be shared with all partners. Sustainability of the project products will be negotiated.

4. Monitoring and Evaluation

A management team was formed by choosing one person from each of the project partners: A Işıtan, Evren Çağlarer, Yasemin Öztekin, Gratiela Dana Boca, Aniello Gervasio, Alessandro Pegoretti, Massimo Bersani, Laura Pasquardini, Teijo Lehtonen, Charlotte Thiel, and Nadia Catenazzi. These people will be responsible for management, implementation, monitoring and quality on behalf of their organization. After the project contract is signed between the coordinator and the NA, bilateral agreements will be sent to all partners to be signed. With these agreements, the coordinator will also share the draft quality plan with the partners. During the kick-off meeting, the quality plan will be discussed and updated. The quality plan will include the timing of all project activities, the start and end dates of each work package, the report formats to be prepared after the applications and activities, and the questionnaires to be applied to the participants. In the project life-cycle in each 6 months 5 Transnational Project Meetings (M1-M5) will be held. In addition, Skype meetings will be organized when needed. After each transnational meeting, a survey study will be conducted among the partners to evaluate the meeting. In this way, problems in coordination, compliance with quality monitoring process tasks, and compliance with suggestions and changes made to identified problems will be monitored. At the same time, an evaluation will be made at the end of the first year, as well as evaluations will be made at the end of each project result, pilot implementations, training activities and dissemination activities. After the completion of each project activity by the partners, the participant list and a report will be sent to the coordinator. The reports will include the following information:

1. Activity name

2. Activity date

3.The place where the activity is held

4. Number of participants

5. Surveys conducted before and after the activity and their results

6. Feedback from the activity

7. Notifications about the activity

8. Opinions and suggestions

In addition, "Evaluation of the meeting" and "INTERNAL PROGRESS REPORT" will be filled online by all partners in every six-month period to evaluate the meeting and project progress after each TPM (Annex 1 and Annex 2). Thus, in addition to the efficiency of the meetings, continuous evaluation will be made in the partnership.

ANNEXES

ANNEX 1: Questionnaire – Evaluation of the meeting

PLEASE COMPLETE ONE FORM PER PARTICIPANT

Introduction

Please rate the aspects of **CK4STIM** partnership meeting as follows:
5 = all positive; 4 = mainly positive; 3 = neutral; 2 = mainly negative; 1= all negative;

Meeting in ….. , on ……..

*1. Please assess individual aspects of the meeting

	5 = all positive	4 = mainly positive	3 = neutral	2 = mainly negative	1= all negative
a. Usefulness of presentations - Presentations were relevant for the project					
b. Usefulness of discussions - Discussions were relevant for the project					
c. Working methods - The methods of working were suitable for the topics and the group					
d. Cooperation with other partners - I enjoyed the cooperation with the other partners					
e. Expectations for the meeting - My expectations about this meeting were met or exceeded					
f. Treatment of difficulties - Difficulties were treated constructively/readily					
g. Quality of my participation - I am satisfied with the quality of my own participation					
h. Outcomes of the meeting - I was satisfied with the outcome the meeting					

*2. What I liked best about the meeting was:

3. What I liked least about the meeting was:

ANNEX 2: Questionnaire – INTERNAL PROGRESS REPORT

Internal Progress Report Form
Reporting period: **……**
Partner:

Qualitative evaluation - Overview of project activities and results:

Period	Activities

Evaluation of the work undertaken:

Please describe any **divergence** from the initial project plan (aims and objectives, work programme, products, partnership, and budget). Give the reasons for the changes.

Concrete results/outputs:

Signature

Name and Surname of the national Manager