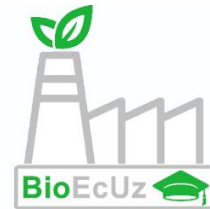




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**New Master's Degree Curricula
for Sustainable Bioeconomy in Uzbekistan (BioEcUz)**

ERASMUS+ CBHE Project No.519294-EPP-1-2020-1-LV-EPPKA2-CBHE-JP

EXTERNAL EVALUATION MIDTERM REPORT

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It was conducted a midterm evaluation of the Erasmus+ Key Action 2 action Capacity Building for Higher Education (CBHE) support programme to contribute to the development of new master's degree curricula for sustainable bioeconomy in Uzbekistan (BioEcUz) during a virtual mission that took place in November 2022. This support project comprises what may, at first glance, seem a somewhat eclectic mixture of educational components that, collectively, are intended to promote an overall objective of an “the development of sustainable and inclusive socio-economic growth in Uzbekistan”. The project takes the form of three, consecutive components which address a) development of the new master study programme; b) training of key instructors and filling of hard/soft gaps for delivery of classes; and c) the development of a internal Monitoring & Evaluation System. Each of these components has its own specific objectives and expected results. Although the components can be seen individually as worthwhile in their own right and collectively as contributing to the overall project objective of “development of new MSP in bioeconomy” and of support to educational reforms, it should be noted that they are likely to have limited, short-term effect on core higher education issues. The logic behind the EU intervention was that new MSP would contribute to the reforms in HE by means of a) improved quality of HE; b) improved skills and capability on the part of key instructors (faculty); c) increased revenue of farms, creation of new jobs; and d) contribute to food security and ensure the sustainable use of natural resources.

The evaluation was carried out in a two-stage process. First, the evaluator exercise was based on undertaking a desk-based review of an extensive collection of documentary material from partner institutions. Secondly, virtual interviews with all relevant beneficiary recipients in Uzbekistan and survey were conducted. Coordinators and team members were able to share their experiences of the project's implementation, impact, concept, planning and reporting arrangements. These interviews were structured around a list of evaluation questions compiled around the standard OECD-DAC criteria for assessing development effectiveness (Relevance, Efficiency, Effectiveness). A questionnaire (in EN and UZ) was distributed among all partners. Finally based on the outcome of the evaluation questions and feedback of the 3 evaluation criteria was given a score between 1 and 5. For all components, the mission has analysed the theory of change and compared the theory with the project work plan to ensure consistency. All new courses developed within the project have been reviewed.

The purpose of the midterm evaluation of the capacity building project named BioEcUz is to assess the level of implementation and intervention within the partner organisations, the achievement of midterm goals and objectives while following the general rules and standards set by the Erasmus+ programme. The external evaluation is part of the Quality Plan.

In describing the assignment, the project description identifies one general objective and four specific objectives. The **general objective** is to contribute to the development of sustainable and inclusive socio-economic growth in Uzbekistan.

The **specific objectives** are:

1. To develop new, innovative bioeconomy related master level curricula.
2. To improve the level of competences and skills in three Uzbekistan's HEIs to create and deliver content supporting and encouraging country's sustainable and inclusive socio-economic growth.
3. To enhance involved HEIs internationalisation and innovation capacities.
4. To share EU good practices in development and implementation of bioeconomy approach, thus supporting Uzbekistan in its intentions to deploy local bioeconomy sectors.

The external evaluation assignment suggested that the evaluation process might base the results around 8 evaluation questions, a set of judgement criteria, provisional indicators and means of verification and a methodology for the overall assessment of the project.

In order to evaluate the overall project, it has been applied the standard OECD-DAC Development Effectiveness typology at the level of each of the project components (and also at the programme level

for overall assessment). To facilitate this process specified component indicators and their means of verification have been used. The following list of evaluation questions has been employed.

Relevance

1. What is the relevance or significance of the intervention regarding national requirements and priorities with regard the relevant sectors and enterprises, active in this bioeconomy sectors?
2. Is the content of the curricula aligned to national and regional priorities and policies?
3. Are the activities and outputs of the project consistent with the overall goal and the attainment of its objectives?

Effectiveness

4. Are the implemented activities implemented in scope as it was planned in the project proposal?
5. What were the major factors influencing the achievement or non-achievement of the objectives? Which were the success factors? Have there been encountered any problems or unintended results that hindered the implementation of the project?
6. Are there any individuals or groups excluded from participation? How was the exclusion of certain individuals or groups addressed?

Efficiency

7. Is the project efficiently managed and coordinated?
8. Is the potential for synergies with other initiatives been sufficiently exploited?

FINDINGS

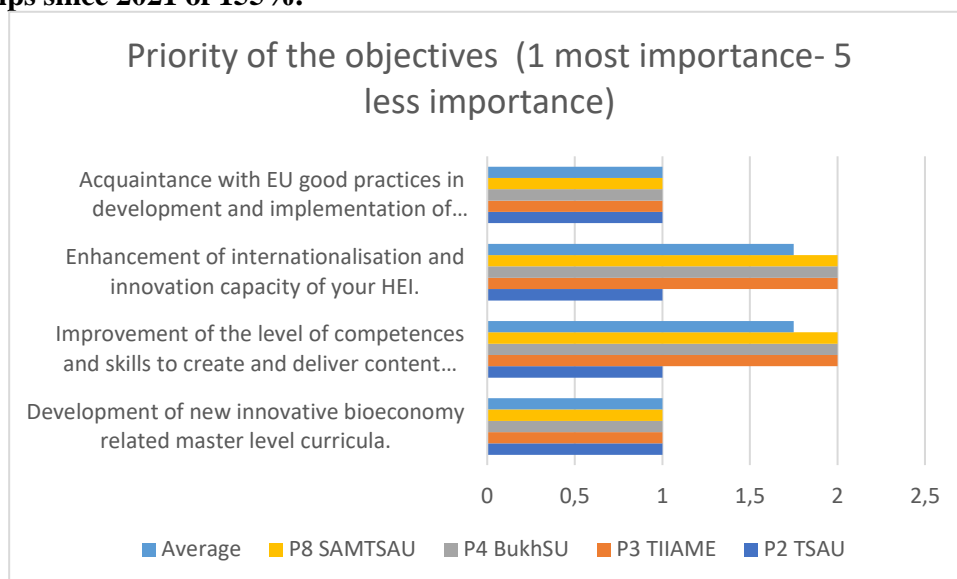
RELEVANCE

According to the current definition of the criteria provided at the OECD/DAC (2006) website, relevance refers to the extent to which the objectives of a development intervention are consistent with beneficiaries' requirements, country needs, global priorities and partners' and donors' policies. Retrospectively, the question of relevance may also become a question as to whether the objectives of an intervention or its design are still appropriate given changed circumstances. In our case, we are interested to find out to what extent are the objectives of the programme supported?

One of the first elements to analyse is whether the delivered activities and outputs were aligned with the priorities of the target country (Uzbekistan) and also with the proposed Erasmus+ CBHE programme. Likewise, we were interested to understand whether the project was adequately managed to deliver the expected outcomes and outputs and whether cross-cutting issues like gender balance and equal opportunities were respected. Moreover, it is worth remembering that Erasmus+ CBHE programme attempts to promote educational cooperation involving the European Union and Third Countries while focusing on the reform and modernization of higher education systems in Partner Countries. Herein, **the project indeed has served to reform HE in Uzbekistan by introduction of new MSP in bioeconomy, thus serving to increase farm and rural incomes and creation of new jobs as well as more sustainable use of natural resources.**

Project has provided a comprehensive report and in-depth analysis bioeconomy-related industries and the public sector, including public bodies dealing with the bioeconomy sectors in Uzbekistan. The report comprises the evaluation and description of HEIs providing bioeconomy-related education in Uzbekistan. Partner HEIs identified the teaching staff to develop MSP. Participating universities are building a system of continuous education, research capacity building, and international cooperation in bioeconomy related fields. The new programs implementation will be continued after the project with partial government support and partly parents' financial support (study fee). The participating partner universities established cooperation with and received political support of the Ministry of Higher and Secondary Special Education of the Republic of Uzbekistan (MHSSE), the Ministry of Water Resources of the Republic of Uzbekistan, the Ministry of Innovative Development of the Republic of Uzbekistan, and the Ministry of Agriculture of the Republic of Uzbekistan. **During the desk-review and interviews with the partner country coordinators it was noted the increase of cooperation with bioeconomy related companies like farms, food producers**

since the beginning of the project, especially in SBTSAU and TSAU with an overall increase of partnerships since 2021 of 155%.



After the project's first phase, Uzbek partners evaluated the importance of project objectives. At the same time, developing a new MSP and gaining EU knowledge and experience were the most critical objectives according to the survey evaluation.

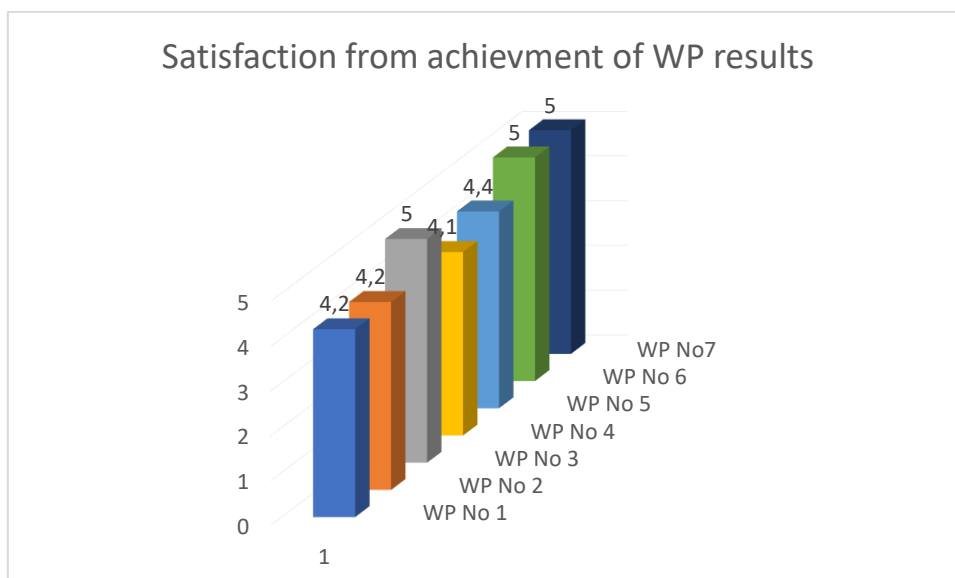
One area where the project has particularly supported the Erasmus+ CBHE program is in the improvement of the level of competences and skills in HEIs by developing new and innovative education programmes. A total of 5 modules with 15 courses were developed. A good example is the Samarkand Branch of Tashkent State Agrarian University (SAMTSAU) which has been added to project consortia by amendment in May, 2021. It has developed and implemented modules Sustainable production and use of bio resources, Bio-resources based manufacturing and processing, Bio-resources based engineering, RTD, innovations and markets of bio-based products, Research approaches in the bioeconomy to its curricula. Taking into consideration the implementation of new master study program, and according to national regulations (State Educational Standards, approved by MHSSE UZ on 16-06-2021 #311) the Qualification requirements and curricula of new, **120 ECTS load MSP Bioeconomy has been developed together with syllabi's and other teaching materials.**

	Unsatisfactory	Unsatisfactory with positive elements	Satisfactory	Highly satisfactory
Innovativeness and added value of the project				X
Outcomes of the project until so far			X	
Addressing your organization's needs by the project				X
Addressing country needs by the project				X
Learning from your participation in the project				X

The BioEcUz project is also supporting the modernisation and internationalisation of higher education in the Uzbekistan by revising and introducing the concept of learning outcomes and competences in the curriculum developed – following Bologna standards. In this sense, the project has also contributed to support national priority of the Uzbekistan where agriculture represents an important sector and amounts to 43.8% of GDP. 49.5% of the total population of Uzbekistan lives in rural areas, and 38% are directly or indirectly involved in agricultural

production. Broadly speaking, the partners involved feel that the project was well conceptualized and that the planned activities were well aligned with the intended outcomes and objectives and that the aspects that were not planned well enough or that were not successful were mostly mended throughout the project. We would generally concur with this although there are a few areas where coordinators affirm, with the benefit of hindsight, they would have done things slightly differently. **It should be noted, in the interest of balance, that the implementation for first phase is considered very good and that it translated into a range of very solid project activities and outputs.** One particular aspect that was commonly praised was the management of the project and clear indications provided by the coordinating unit LLU.

The most significant weakness in terms of relevance is a lack of gender balance in the project with a majority of male members from third country representing the consortium. While EU institutions P1 LLU, P5 VMU and P6 JAMK are led by a female coordinator, all UZ institutions represent male coordinator at project steering. Likewise, most of the staff involved in different project activities were male. There is nonetheless an effort to provide equal opportunities and this was granted when developing courses to both male and female faculty members (42 male and 33 female). We also take into account that a majority of staff and students in the field of agricultural studies are male in countries like Uzbekistan. A second conceptual weakness was perhaps in enrolment. The new requirement on enrolment to postgraduate studies were adopted since 2022-2023 academic year. It is obligatory to have valid, internationally recognized language certificate with minimum level B2 of the Common European Framework of Reference for Languages (CEFR). According to official statistics of MHSSE this limitation has resulted in only 12% of the available places being enrolled in master's programs nationally. During desk interview with partners it has been declared that additional examination will be provided for enrolment more students at winter semester. Ministry softened requirements on language certificates as well.

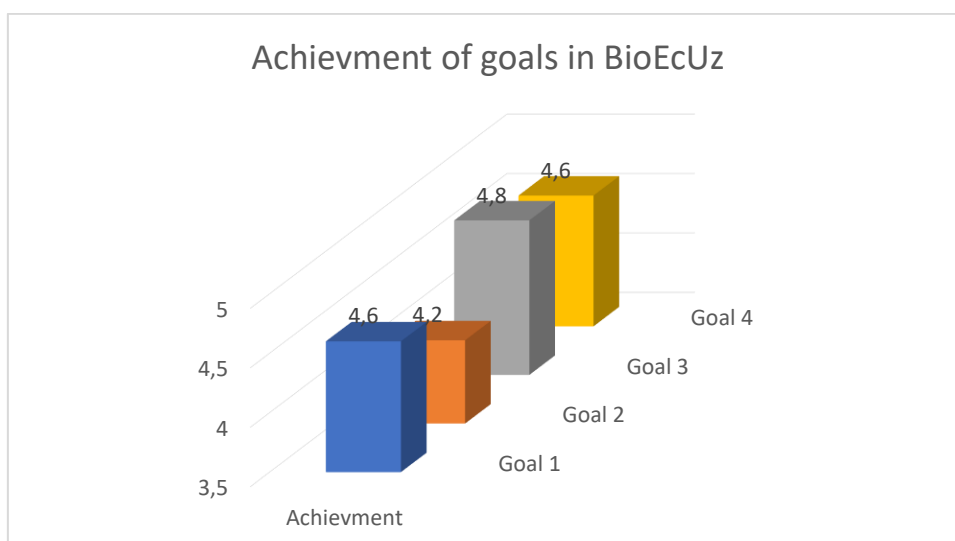


EFFECTIVENESS

Effectiveness is usually understood as the extent to which an activity attains its objectives. In evaluating the effectiveness of the project, it is useful to consider to what extent were the objectives achieved or what were the major factors influencing the achievement or non-achievement of the objectives. Our natural departure point is the logical framework and the project objectives expected to be achieved.

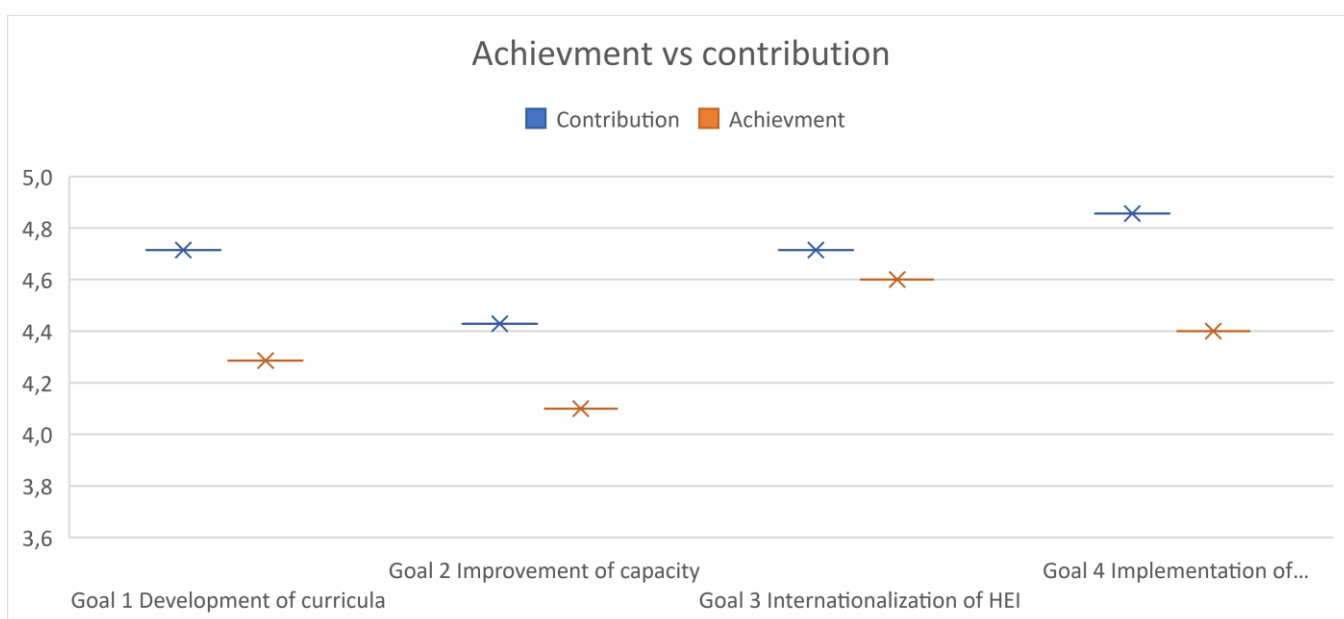
In general partners considered that the project was largely achieved specially in relation to the introduction of learning outcomes and Bologna standards in curriculum, development of MSP

course content, increase of “soft” and “hard” capacity of Uzbek partner HEIs. Enrolment of students presented some challenges.



Good examples have been also observed towards the achievement of goals. A large-scale analysis of the bioeconomy sector was carried out and the report was developed in 2 languages (Uzbek and English). The study program was developed according to the prepared report. The composition of the courses was formed based on the ecological and natural conditions of the country. The partners positively evaluated the equipment of modern classrooms. However, all UZ partners mentioned difficulties in collecting data due to the novelty of the approach and terms.

The new regulation introduced by the ministry requires a B2 level certificate for foreign language—this limited possible application to the master program for all master programs in Uzbekistan. Consequently, the mandatory number of students in the pilot study program "Bioeconomy" is not assured yet.



The uptake, understanding and adoption of new teaching methods and principles was a success of the Work Package 3 towards the second objective mentioned above.

When asked the coordinators from partner countries about their contribution to the achievement of the objectives, in two of the four objectives set in the project partners it was

considered their contribution was very important towards the goal achievement. The UZ partners evaluated positively provision of high-quality training by EU professors and abroad study visits, training of local faculty members, exchange of experience. EU partners pointed out on fruitful and encouraging collaboration of 7 universities from 4 countries. The project has given good insight into Uzbekistan's bioeconomy and, to some extent, Uzbekistan's development schemes.

Assessment for Effectiveness criterion:

Objectives	Contribution	Achievement
Goal 1 Development of curricula	High	Largely achieved (4,3)
Goal 2 Improvement of capacity	Moderate	Moderately achieved (4,0)
Goal 3 Internationalization of HEI	High	Largely achieved (4,6)
Goal 4 Implementation of bioeconomy approach	High	Largely achieved (4,4)

Remarks: The delay with implementation of the study visits was caused by Covid 19 travel restrictions. However, project consortia managed to implement remotely all T3.2 Pedagogic training (even in larger scope than planned). P3.3 Training is study course subjects is ongoing according to project workplan. Equipment is purchased and delivered by start of 2022-2023 academic year. **According to plan, Goal 2 mostly to be achieved by 2nd phase of project.**

EFFICIENCY

Efficiency according to the DAC methodology measures the outputs — qualitative and quantitative — in relation to the inputs. While effectiveness refers to the achievement of project objectives, efficiency refers to the use of resources toward the achievement of those project goals or the measures taken to promote efficient project administration and implementation. Ideally, this generally requires comparing alternative approaches to achieving the same outputs, to see whether the most efficient process has been adopted.

In terms of activities accomplished, the following results were obtained per Work Package where green colour indicates fully completed, orange colour indicates partially completed (ongoing and to be continued at the 2nd reporting period, according to the plan) and red would mean not completed.

WP1

Result #	Concept	Assessment
Expected Result 1	In-depth study of involved HEIs, bioeconomy related industries, public bodies dealing with bio-economy sectors and national policies related to bioeconomy	
Expected Result 2	Joint report on findings and recommendations for the new study program	
Expected Result 3	Joint workshop	

Remarks: The involvement of UZ academic staff to WP is high. The UZ partners provided the information that EU experts requested for the analysis. All partners responded about availability of data on national statistics. There were only few data available on several areas of the bioeconomy.

WP2

Result #	Concept	Assessment
Expected Result 1	Syllabuses, teaching plans, lectures' materials developed	

Expected Result 2	Documentation for the MSP licensing and submission to the MHSSE	
Expected Result 3	Use of new teaching tools & methodology	
Expected Result 4	Joint workshop	

Remarks: High involvement level of all the project partners WP is observed. Contents of the new curricula specified according to needs of Uzbekistan's economics. All Uzbek partners have submitted necessary documents for approval of program to the Ministry of Higher and Secondary Specialized Education. The quotas and permission to start new curricula implementation has been issued to all 4 UZ HEIs. The "Qualifications Requirements" which is obligatory part of State Educational Standards, have been developed jointly and submitted by P2 TSAU and approved by the Ministry. Further communication about the contents and more feedback about the curricula contents from teachers is crucial.

WP3

Result #	Concept	Assessment
Expected Result 1	Study visits of involved UZ universities' teaching staff at EU partner countries	
Expected Result 2	Training of UZ universities' teaching staff in teaching methodologies.	
Expected Result 3	Training of UZ universities' teaching staff in study course subjects.	
Expected Result 4	Purchase and installation of equipment for e-learning environment and scientific data base licences	

Remarks: The WP3 is ongoing. 3 study visits are held, 3 postponed. Delay was caused by Covid19. The 1st round study visits were organised and held immediately after cancellation of travel ban. In order to provide trainings in full extent additional distance training sessions are organised. This is increasing use of working time of EU academic staff. The Uzbek teacher's visit to Finland faced some challenges in practical arrangements due to the unexpected visa protocol restrictions causing the arrival delay. (T3.1.) In the teacher's pedagogical training, there have been changes in personnel carrying out the training. (T3.2.) There are technical problems with the internet connection and interruptions during pilot lessons, and there have been some challenges in accessing Moodle. The arrangements of the study visits took much more resource than it has been allocated. However, the travelling arrangements would be started at the early phase.

WP4

Result #	Concept	Assessment
Expected Result 1	Pilot studies (24 students)	
Expected Result 2	Open master classes	
Expected Result 3	Joint workshop	

Remarks: Pilot group studies started according to plan with lesser number of students. All students currently participating in training, equally learns the learning material both in face-to-face and remote classes. In addition, students have wide opportunities to use and download all study materials, study and additional literature in Moodle system.

WP5

Result #	Concept	Assessment
Expected Result 1	Elaboration of the MSP quality assessment methodology	
Expected Result 2	Permanent evaluation during pilot studies	
Expected Result 3	Elaboration of the project quality evaluation methodology	
Expected Result 4	The project quality assessment (internal and external)	
Expected Result 5	Elaboration and updating of the sustainability plan	

Remarks: MSP quality assessment methodology is elaborated. Quality assurance and measurement methodology is elaborated. It is integrated in the involved universities quality systems. Results 2 and 4 are expected to be achieved at 2nd phase of the project according to plan. Sustainability plan is elaborated.

WP5

Result #	Concept	Assessment
Expected Result 1	Design, development and maintenance of the project's website	
Expected Result 2	TV and radio broadcasts	
Expected Result 3	Publications in social media and mass media	
Expected Result 4	Design and print of dissemination materials	
Expected Result 4	Joint academic, public institutions and industries bioeconomy forums	

Remarks: Webpage is developed by P2 TSAU. It is convenient for communication with project stakeholders. The media campaign for promotion of new MSP were provided at national and local TV, internet sites and other mass media like "Yoshlar", "Uzb 24", SamMTRK, Kun.uz, Daryo.uz etc. Uzbekistan's partners are writing an article about study visit to EU countries. The leaflets and banners developed and published.

Assessment for Efficiency criterion:

	Unsatisfactory	Unsatisfactory with positive elements	Satisfactory	Highly satisfactory
Management of project				X
Involvement of partners			X	
Promptness in project implementation			X	
Completion of activities			X	

CONCLUSIONS

The project's support to the development of new master program in bioeconomy and is having a significant impact on the capacity, competence and performance of the UZ partner HEIs that is already evident in quantitative terms as indicated in the quality reports. Better equipped academic staff in technological and pedagogic tools is playing valuable role in helping to shift from teacher-oriented to student-oriented mode of education. Given the impending changes in educational paradigm, and based on past experience, there is very likely to be considerable turnover in staff which means that, in order to maintain project impact, the people retrained in the project will have the important responsibility of imparting new skills and knowledge to incoming young teachers who are serving the corresponding chairs, departments and faculties.

The innovativeness and added value of the project can be seen in the supply of interdisciplinary specialist cohorts to the labour market specially when the demand for such specialists may increase after the Covid19 pandemic, especially in large companies. Third country partner HEIs are now equipping with better equipment and innovative pedagogies. One of the main outcomes of the project is the use of innovations by students. The project is fostering integrated research and innovations in fields of agriculture, technology and economics. The challenge for the future is to disseminate this approach among the institutions. Members of the partner HEIs should be encouraged for staff ownership and by gain institutional support at all levels towards this end. **The main lessons learned from beneficiary participants in the BioEcUz project have been the introduction of new field in postgraduate education and responsibility for shifting towards the student in a learner-centred setting.** Neither students nor teachers

would have been adapted at making this shift without the contribution of the Erasmus+ Programme.

Some positive aspects of the project and areas for improvement can be summarised in the table below:

Positive	Areas for improvement
<ul style="list-style-type: none"> • Provision of trainings by EU professors. • Abroad study visits and training of involved HEIs academic staff. • Exchange of experience and trainings, high quality classes. • Strong management and involvement the partners of the project. • Very good co-operation with the teachers from Latvia, Lithuania and Finland. • Excellent networking. • Approval of the new curricula at the national level (assigning quotas for all 4 involved UZ universities) • Ability to learn and progress of involved UZ universities in terms of both: project management and thematic fields. 	<ul style="list-style-type: none"> • Continuing training of involved UZ HEIs academic staff in the field of bioeconomy. • Improvement of English language skills for UZ partners' staff. • Quality assurance of the study process for students who will join to the pilot study program in January 2023. • Sustaining regular increase of capacity of trained UZ HEIs teachers in the implementation of pilot study programme "Bioeconomy". • Availability of all planned number of students (24). • More strong support of administration is needed at Bukhara State University.

According to DAC criteria, we can state that **the project is very relevant for the donors, the EACEA and has been a game changer for the beneficiary institutions in their shift towards a interdisciplinary natural resource saving education.** Recent legislation in Uzbekistan have facilitated an alignment with the Bologna system and transitional acceptance of ECTS as credit system model. The project is reasonable effective in terms of achieving its objectives.