

FIRST SIX-MONTH REPORT ON IMPLEMENTATION OF WORK PACKAGE 3

The largest number of project activities and the most intensive engagement of project team members was realized within Work Package 3, which is in accordance with the expected dynamics and project activities.

During the implementation of Work Package 3, there were no problems, but the need for modifications was observed regarding the dynamics and form of activities, which is explained in this report. Basic activities during the implementation of Work Package 3 are aligned with its basic outcomes:

D 3.2. Intersectoral connection plan, with a defined Fieldwork Plan (M9)

The mentioned two activities were completed in full. The Cross-sectoral connection plan was prepared by prof. Jelena Ješić, and the Fieldwork Plan by Prof. Vilmoš Tot.

With the aim of conducting research in the field, the researcher's methodology was defined as follows:

Research questionnaire

In the first phase of the project, a research questionnaire was prepared, and during June 2023, a pilot study was conducted to determine:

- a) whether the answers to the questions provide information that is important for the realization of the project's goals; and
- b) whether the respondents fully understand each question.

The questionnaire consists of:

- a) questions that define the socio-demographic profile of the respondents;
- b) questions indicating the degree of general familiarity with sustainable development and principles of circularity; and
- c) issues that are focused on the efficient use of resources, energy and waste treatment, as other priorities of the circular economy.

A special group consists of questions that give insight into:

- a) position of women in rural areas;
- b) the position of young people in rural areas; and
- c) the use of digital technologies in rural areas.

In addition, respondents were allowed to give their opinion in a free form.

Number of respondents

It is planned that the research will be conducted on a minimum number of 200 respondents, of all age categories and both genders.

Geographic coverage

Rural development is important for the entire Republic of Serbia, but it was proposed and adopted that the research should focus on the regions of central and southern Serbia, and that it should be carried out entirely in rural areas.

Certainly, the responses of respondents from other parts of the Republic of Serbia will be considered and presented.

Research questionnaire form

The research questionnaire should be adapted to the respondents' preferences, and it was prepared:

a) paper version; and

b) electronic version of the questionnaire that can be viewed at:

https://docs.google.com/forms/d/e/1FAIpQLSequzSnb6WoRDqcOthiovDDO980RqQ1sq_yd3fV_yXVltfpP6A/viewform

The electronic version of the questionnaire is prepared in a form that allows easy and simple access from a computer or mobile phone, and one person can survey several household members, which is especially necessary in the case of surveying elderly residents.

Member of the project team in charge of entering answers from questionnaires in paper version into the database: Assistant Zoran Brljak.

Dynamics of research

After the pilot research conducted in July, in July 2023 (M4) research was started in selected regions of the Republic of Serbia. Every month Doc. Dr. Igor Vukelić reported to the project team about the progress of the research.

Research Report

(Phase One)

The research was conducted in the form of a survey during the year 2023. The focus of the research was on individuals from the rural areas in the Republic of Serbia. The questionnaire contains questions related to attitudes concerning the circular economy, sustainable development, women and youth in rural areas, and the use of information technology.

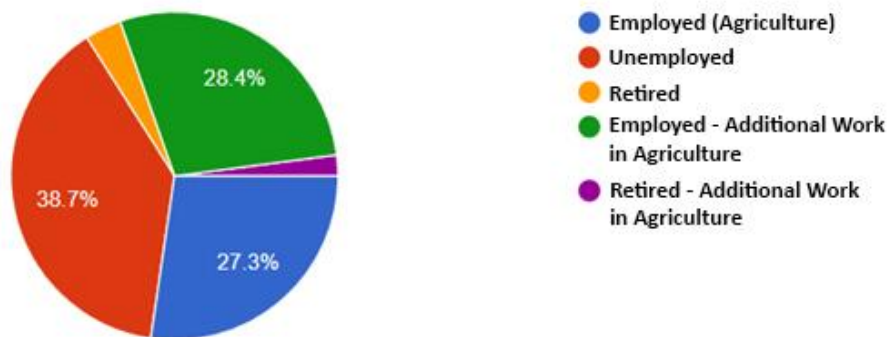
The quantitative research was conducted using a survey technique on a sample of *194 respondents, surveyed in 44 out of the total 174 municipalities/urban municipalities that constitute the territorial units of the Republic of Serbia* (Alibunar, Arilje, Bački Petrovac, Bečej, Beočin, Bogatić, Kikinda, Kosovska Mitrovica, Kovačica, Kragujevac, Kraljevo, Kula, Loznica, Merošina, Mionica, Negotin, Nova Crnja, Novi Bečej, Novi Sad, Opovo, Palilula, Pančevo, Petrovaradin, Pirot, Plandište, Rača, Ruma, Šabac, Smederevska Palanka, Sombor, Sremska Mitrovica, Surčin, Temerin, Topola, Trgovšće, Trstenik, Užice, Vranje, Vrbas, Vršac, Žabalj, Zaječar, Zrenjanin).

Quantitatively, the research in the first phase included 194 respondents. Bearing in mind that the sample of 200 respondents was defined as acceptable by the panel of experts during the presentation of the project at the Fund for Science, it can be said that the goal has almost been reached, but all answers received in the second phase of the research will be taken into account.

Geographically, the research covered a large part of the territory of the Republic of Serbia. After the end of the first phase of the research, which is planned for December 1, 2023, a new section of the situation will be made, and further steps will be defined accordingly.

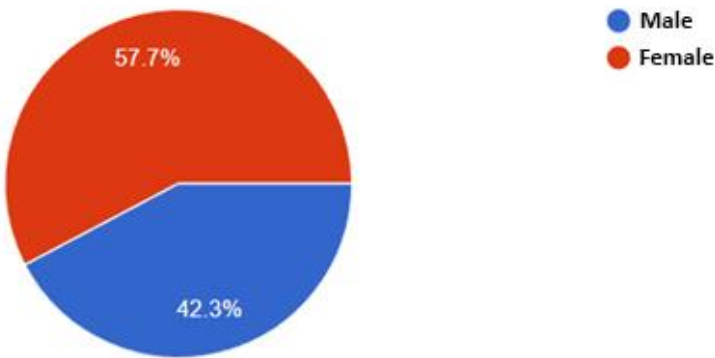
The structure of the respondents can be considered satisfactory, in relation to the goals and expected outcomes of the research.

The structure of respondents in terms of employment status indicates that the majority are not employed (38.7%), followed by those employed with additional work in agriculture (28.4%) and those employed in agriculture (27.3%) (Graph 1).



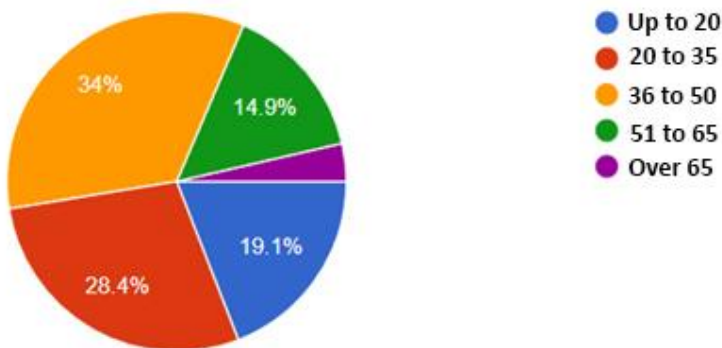
Graph 1: Employment Status of Respondents

Demographic characteristics of respondents (Graph 2) show a predominance of female individuals (57.7%), while the percentage of male respondents is 42.3%.



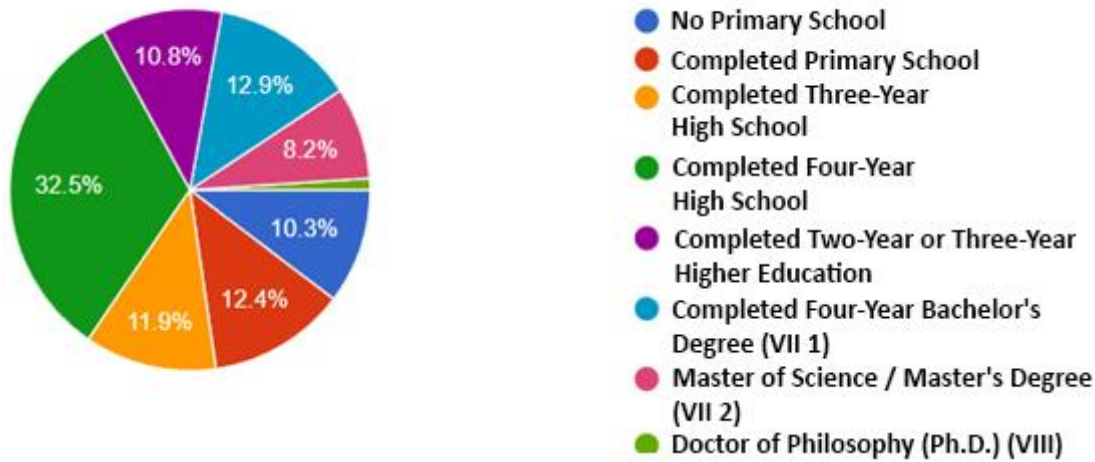
Graph 2: Gender of Respondents

The largest percentage of respondents (34%) falls within the age range of 36 to 50 years, with the least represented respondents being over 65 years old (3.6%) (Graph 3).



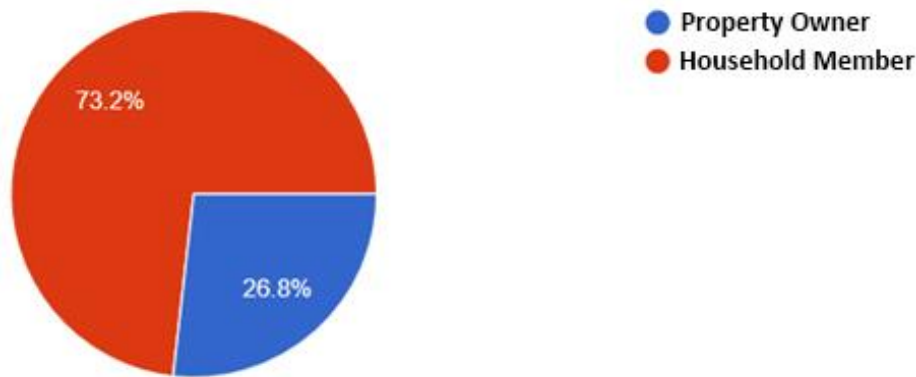
Graph 3: Age Structure of Respondents

The majority of respondents (32.5%) have completed secondary vocational education (Graph 4), while only 1% of respondents hold a doctoral degree.



Graph 4: Education of Respondents

Only 26.8% of respondents identified themselves as landowners (Graph 5).



Graph 5: Distribution of Respondents by Property Ownership

Training in the use of analytical software

The project envisages the procurement of modern analytical software that will enable advanced data processing, scenario creation and modeling. During May 2023, consultations were held with

the manufacturers of various software from this group, a shortlist was made and the analytical software *Analytica* (<https://lumina.com/>) was selected. The software manufacturer has shown a willingness to make certain concessions, since they have been shown the purpose for which the software is being procured. The manufacturer has decided to provide the software at a discounted price, to provide perpetual (rather than annual) licenses, and to provide training for the use of the software completely free of charge (the standard cost of training per person is \$1,800).

4 people from Educons University were trained. The selection of training participants was made on the basis of previous consultations with the training organizer, with the aim of having people with adequate prior knowledge attend the training.

All documentation on software selection is kept on file.

Training Report on the Use of *Analytica* Software

Date: from June 05, 2023, to June 08, 2023.

Training duration: from 15:00 to 18:00.

Analytica is software designed for data modelling and analysis, empowering users to visually create complex models, analyse data, simulate scenarios, and make effective decisions.

For more information about the *Analytica* software, please visit *Lumina's* official website: <https://lumina.com/>

Trainers:

- James Milford, Lumina Decision Systems, Campbel, USA
- Ben Filstrup, Lumina Decision Systems, Campbel, USA
- Karen Lee, Lumina Decision Systems, Campbel, USA
- Max Henrion, Lumina Decision Systems, Campbel, USA

The training was attended by:

- Educons University, Sremska Kamenica, Serbia:
 - Prof. Dr. Mirjana Radovanović
 - Doc. Dr. Igor Vukelić
 - Prof. Dr. Aleksandra Rankov
 - Prof. Dr. Vladan Rankov

- National Health Service, England, United Kingdom
- Novelis, Atlanta, Georgia, United States

Training topic:

The goal of the training was to enable participants to use *Analytica* software for creating and analyzing complex models. A total of four training courses were held, each lasting 3 hours (from June 05, 2023, to June 08, 2023).

On the first day of the training, which took place on June 05, 2023, via the *Zoom* platform, participants were introduced to the basics of *Analytica* software. They were presented with the fundamental usage of the software and its functionalities.

On the second day of the training, participants were shown how to perform data visualization and manage arrays.

On the third day of the training, participants were introduced to uncertainty analysis and dynamic models.

On the last day of the training, June 08, 2023, participants were shown how to create functions, perform optimization, and apply advanced modelling.

Training outcomes

The participants demonstrated significant progress in the application and understanding of *Analytica* software during the four-day training, which will aid them in their future work and successful implementation of project activities.

***Analytica* Software for Data Processing**

Data processing within the project will be realized using *Analytica* software, which will facilitate the creation of characteristic samples among variables, the quantification of qualitative data, and their visualization. The extensive range of capabilities offered by *Analytica* software will enable the derivation of indicators related to the circular economy in agriculture, focusing on:

- Women in rural areas,
- Youth in rural areas, and
- Information technology in rural areas.

Based on the obtained indicators, proposals will be defined for:

- Enhancing the status of women and youth,
- More efficient implementation of information technology, and
- Necessary training and education in the field of the circular economy.

Equipment purchase

For the need of uninterrupted operation of the analytical software and in cases of interruption of the electricity supply, equipment was purchased that enables power supply even in such situations. The equipment is adequately marked (Figure 1):



Слика 1. *UPS Load Changeover Panel* purchased for the purposes of the project

Dissemination and promotion of research

The research methodology was presented and published on August 19, 2023 in a scientific article published in an open access journal of category M22 (<https://doi.org/10.1186/s13705-023-00413-4>), published by *Springer*.

The original scientific paper entitled "*Sustainable transition of the Republic of Serbia: measuring the capacity for circularity in agricultural and rural areas*" was prepared by the author: Assoc. Dr. Igor Vukelic, Assoc. Dr. Srđan Milošević, Prof. Dr. Diona Đurđević, Prof. Dr. Gordana Racić and Prof. Dr. Vilmoš Tot (out of five authors, four are members of the project team).

Apart from the research methodology, the paper also presents the research questionnaire and information about the selected software.

At the time of preparation of this report, two months after its publication, the scientific paper has been reviewed 485 times, which can be seen at the following link:

<https://energysustainsoc.biomedcentral.com/articles/10.1186/s13705-023-00413-4>



Three scientific articles are in the peer review process (three in a journal of category M22 and one in a journal of category M23). Three articles are under preparation.

D 3.3. Reports on completed visits, definition of the Working Group (M4 - M21)

Reports on completed visits are kept in the archive with other project documentation.

The formation of the Working Group gained particular importance during the implementation of project activities and consultations. Namely, the implementation of activities on the implementation of Work Package 1 and Work Package 2 showed that there is a need to reformulate the initial Working Group into a *Working-Advisory Group*, made up of experts, which will have the task of monitoring project activities and giving certain advice. and directions. Contact was made with experts from various fields, to whom the project, its activities and outcomes were presented. The Working-Advisory Group will be formed at the First Round Table, which is planned for November 22, 2023.

D 3.4. Field visit report (M17)

The project team considered it advisable to present its impressions and the first, preliminary results of the research to the professional public of the Republic of Serbia. The form of a round table was chosen as the most appropriate way to exchange experiences. The round table will also discuss issues of global challenges that may affect the green transition of the Republic of Serbia as a whole.

During September, preparatory activities were carried out for the organization of the First Round Table entitled "*Global Challenges and Green Transition of the Republic of Serbia*", which will be held on November 22, 2023 at the Gourmet Center (<https://www.gourmet-vrdnik.com/>). The presence at the Round Table was confirmed by 23 participants from the sphere of state administration, scientific community, local self-government, rural areas, as well as youth representatives and media.

It is planned that the round table will present experiences from neighboring countries as well, and discuss issues of connection and possible cooperation in the future.

The project team considers it advisable to hold the first round table in November 2023 (M8) and the second round table in November 2024 (M20), which is three months later than planned, for the sake of better visibility of the project and connecting stakeholders. The project team believes that it is necessary to review the most important research results and prepare part of the project results, which would be presented as such after one year from the moment of the First Round Table, which can be considered rational and expedient.

Announcement of the First Round Table: <https://www.educirc.rs/en/announcement-of-the-first-round-table/>

Members of the project team responsible for the preparation and implementation of the First Round Table: Prof. Dr. Mirjana Radovanović and Prof. Dr. Gordana Racić.

D 3.5. Database on indicators of the economy's capacity for circularity (M17 – M21)

With the beginning of the research, a database was established in which the respondents' answers are registered and which will serve as the basis for data processing. Keeping in mind the change in the dynamics of field work, the following is expected:

- a) database with answers of all respondents until the end of 2023 (M9);
- b) completion of data processing is expected by the end of May 2024 (M14).

A certain modification of the dynamics was needed in order to obtain data on research results in a timely manner and to enable the smooth preparation of related project results (scientific publications and recommendations).

Members of the project team in charge of administering the database and their processing:

Assoc. Dr. Igor Vukelić and Prof. Vilmoš Tot.

D 3.6. Visit reports (M22)

The project proposal envisages the holding of three specialized workshops (two within Work Package 3 and one within Work Package 4), each of which will be dedicated to a specific group of respondents and a specific aspect of the circular economy. The project team concluded that it is necessary and useful to hold workshops at an early stage of the research, in order to familiarize the residents of rural areas with the project activities as early as possible. It is planned that the workshops will be held in the north, in the central part and in the south of the Republic of Serbia,

in order to gain, through direct conversation, a more realistic insight into the situation and to carry out part of the survey.

Preparatory activities have been carried out on the following:

a) The first workshop will be held on October 3, 2023 in the village of Mokrin (Kikinda municipality) with an emphasis on considering the use of digital technologies in the countryside. During the preparatory activities during August 2023, contact was established with the project team of the "Digital Village" project (<https://digitalnoselo.rs/>), which is closely focused on the issue of digitization of rural areas. It was agreed that the experiences from both projects will be discussed at the workshop, and that in the conversation with the locals (predominantly the young population), answers will be heard to the questions of how young people see their position and future in the countryside, as well as for what purpose they use digital technologies.

Member of the project team responsible for the organization of the First Workshop: Prof. Dr. Diona Đurđević.

b) The second workshop will be held on October 11, 2023 in the village of Čumić (Kragujevac municipality), with an emphasis on the position of young people and women in rural areas. The village of Čumić is considered an advanced village, with a positive birth rate and quality of life, and it is necessary to look at the specifics of the environment and the factors that influenced the positive indicators through a direct conversation. During June 2023, a preparatory visit was made to this village, during which the project and its goals were presented, and the details of the future workshop, survey and directions of further cooperation were discussed.

Member of the project team responsible for the organization of the second workshop: Prof. Dr. Mirjana Radovanović.

v) The third workshop for Work Package 3, which is dedicated to representatives of local self-governments, will, as planned, be held in the south of the Republic of Serbia. The exact venue and date will be determined later.

Member of the project team responsible for the organization of the Third Workshop: Prof. Dr. Gordana Racić.

D 3.7. Monograph: *Circular economy as a driving force for the development of the new economic identity of the Republic of Serbia: attitudes, implementation, challenges and perspectives* (M23)

It is planned that the monograph mentioned above, whose publication is planned for the very end of the project implementation (M23), will present a summary of the project activities, knowledge and results reached during the implementation of the project, with a presentation of recommendations and directions for further research.

Members of the project team in charge of preparing the monograph: Prof. Dr. Jelena Ješić and Prof. Dr. Simonida Vukadinović. A content draft approved by the members of the project team was also prepared in September 2023, and the search for available sources is carried out below. After receiving the research results, they will be included in the monograph.

This material was created with the financial support of the Science Fund of the Republic of Serbia. Educons University in Sremska Kamenica is solely responsible for the content of this material, and this content does not reflect the views of the Science Fund of the Republic of Serbia.