

**D 4.1.4:
Delivery of Services (Pilot Operation)**



Summary

This report summarizes all the actions that are taking by the LP (i-BEC) concerning the delivery of tools/services developed by the LP to all project partners that are involved in pilot applications. In particular, the three tools/services are: 1) Precision irrigation: a digital model for the application of precise irrigation in space and time which is further upgraded, customized and applied within the Greek and Albanian territories, 2) application of Codes of Good Agricultural Practices (CGAP): a digital tool for the evaluation of the implementation of CGAP in Cyprus and North Macedonia territories and 3) application of soil erosion risk assessment: a digital model for large-scale risk assessment of soil erosion is customized for use within the Bulgarian territory.

LIST OF FIGURES

Figure 1 Partners discussion regarding the delivery of services during the kick-off meeting.....3

Figure 2 Partners discussion regarding the delivery of services during the kick-off meeting.....3

ACRONYMS

The following acronyms have been used in this document:

BMP	Best Management Practice
CGAP	Codes of Good Agricultural Practices
GIS	Geographical Information System
i-BEC	interBalkan Environment Center
LP	Leader Partner
SDR	Sediment Delivery Ratio

Table of Contents

- 1 Introduction 1
- 2 Delivery of services and tools to partners 2
 - 2.1 Main Objective 2
 - 2.2 Partners-specific delivery of services and tools 2
- 3 Bibliography..... 5

1 INTRODUCTION

The Re-Source project tackles the need for improved transnational governance capacity in relation to the following three fields:

1. Irrigational water management
2. Codes of good agricultural practices (CGAP) and
3. Soil erosion risk management.

The overall objective of the project refers to the enhancement of the capacity of the public administration in five Balkan-Med countries, in relation to soil and water resources management, environmental protection and related legal framework implementation.

In agreement with the directions of the BMP framework, the project aims to capitalize on results from past projects, namely digital tools/services produced within the “Digital Convergence” framework and the “AGRO-LESS” project (ETCP Greece-Bulgaria 2007-13) and expand/customize their use into the territories of five Balkan counties: Greece, Bulgaria, Albania, Republic of North Macedonia and Cyprus in order to promote governance capacity and legal framework delivery in the three aforementioned fields.

The project exhibits a high level of transnational cooperation. The main co-operational channel among them will be brought forward by the LP (i-BEC) which aims to act as a transnational hub for the delivery of services, tools and know-how towards the rest of the partners and in close collaboration with them during all implementation phases. The transnational partnership/consortium of the project has the potential to bring changes on a wider-than national level, through the specification and development of common/harmonized definitions, methodologies and targets in the currently highly unspecified – in regulatory terms – environmental fields tackled by the project.

2 DELIVERY OF SERVICES AND TOOLS TO PARTNERS

2.1 Main Objective

The main objective of the present material is to present all the actions that are taking by LP concerning the delivery of services towards to public bodies/end users and the application of the digital tools (pilot operation).

2.2 Partners-specific delivery of services and tools

The services and tools were provided to the specific project partners that are involved in pilot applications.

In particular, LP provided services and tools to P4 who is responsible for the large-scale soil erosion risk assessment model application in Bulgaria, to P5 and P6 who apply the precision irrigation model in Albania with the participation of local farmers, and to P7 and P8 who apply the Codes of Good Agricultural Practices (CGAP) in specific sites in North Macedonia and Cyprus, respectively.

In the framework of the kick-off meeting of the project that took place in the facilities of LP on July, 25th 2019, LP presented the procedure and the key points of the main activities of the project. In particular, the project's main activities include the application of precision irrigation in Greek and Albanian study areas, the application of Code of Good Agricultural Practices in Cypriot and North Macedonian territories, the application of soil erosion risk assessment in Bulgarian territory, the legal and institutional framework analysis, the present state & end user requirements analysis, the methodological guidelines & data collection protocols, the data collection procedure, the supply of the appropriate equipment, the services and digital tools development & customization, the establishment of upgraded central system and inter-related subsystems, the delivery of services (pilot operation) procedure, the operational evaluation of central system and inter-related subsystems, the techno-economic and environmental evaluation and the feasibility studies and strategic guidelines on agricultural resource management. Moments of the discussion and services delivery that were carried out during the kick-off meeting are presented in Figures 1 and 2.

D4.1.4 Delivery of services (pilot operation)

Re-Source - Providing services for management of natural resources



Figure 1 Partners discussion regarding the delivery of services during the kick-off meeting.



Figure 2 Partners discussion regarding the delivery of services during the kick-off meeting.

During the first project meeting that took place in the Bulgarian Ministry of Agriculture, Food and Forestry on February, 28th 2020, LP presented to all the project partners the progress that has been occurred regarding the digital tools development and customization as well as on the services delivery. LP had a very fruitful discussion with all the project partners in order the scientific and technical obstacles to be overcome and the successful delivery of services and tools to be ensured. In particular, LP discussed the progress in the execution of the project in the Thessaly Region with PP 2 (Region of Thessaly, Greece), the spatially distributed irrigation program implementation and the associated environmental benefits with PP 3 (Hellenic Agricultural Organization DEMETER – Soil and Water Resources Institute, Greece), the required equipment, the legal and institutional framework analysis procedure concerning soil erosion, the organization of seminars and workshops with the commitment of public administration personnel on soil and water resources management issues and related legal framework implementation with PP 4 (Executive Forest Agency, Bulgaria) and the on-going activities regarding the delivery of services and tools with PP 5 (Ministry of Tourism and Environment, Albania), PP 6 (National Agency of Natural Resources, Albania) and PP 7 (Center of Climate Change, North Macedonia).

Moreover, LP has completed the feedback collection from the project partners regarding the existing capacities and their needs regarding the training of services use. LP has completed the management and organization of the collected feedback and finalized the “Roadmap Making”.

Finally, it should be noted, that LP is continuously providing technical and scientific support to all project partners regarding the provided services including the customization of the existing parts of the system such as the portal, the system’s database, the data reception and the webGIS-webIMS application.

3 BIBLIOGRAPHY

- Arslan, Selcuk, and Thomas S. Colvin. 2002. "Grain Yield Mapping: Yield Sensing, Yield Reconstruction, and Errors." *Precision Agriculture*.
- Basso, B. et al. 2001. "Spatial Validation of Crop Models for Precision Agriculture." *Agricultural Systems*.
- Brisco, B. et al. 1998. "Precision Agriculture and the Role of Remote Sensing: A Review." *Canadian Journal of Remote Sensing*.
- Chemin, Y., and T. Alexandridis. 2006. "Water Productivity at Different Geographical Scales in Zhanghe Irrigation District, China." *Asian Journal of Geoinformatics* 5(1): 3–11.
- Desmet, P. J.J., and G. Govers. 1997. "Comment on 'Modelling Topographic Potential for Erosion and Deposition Using GIS.'" *International Journal of Geographical Information Science*.
- Ferro, V., P. Porto, and B. Yu. 1999. "A Comparative Study of Rainfall Erosivity Estimation for Southern Italy and Southeastern Australia." *Hydrological Sciences Journal*.
- Jackson, T. J. et al. 1981. "Soil Moisture Updating and Microwave Remote Sensing for Hydrological Simulation." *Hydrological Sciences Bulletin*.
- Karydas, Christos G., and Panos Panagos. 2018. "The G2 Erosion Model: An Algorithm for Month-Time Step Assessments." *Environmental Research*.
- Knijff, Jm Van Der, Rja R.J.a. Jones, L. Montanarella, and J.M. Van der Knijff. 1999. "Soil Erosion Risk Assessment in Italy." *Luxembourg: Office for Official Publications of the European Communities*.
- Lee, W. S. et al. 2010. "Sensing Technologies for Precision Specialty Crop Production." *Computers and Electronics in Agriculture*.
- Marques da Silva, R., Santos, C.A.G., Medeiros Silva, A., 2014. 2014. "Predicting Soil Erosion and Sediment Yield in the Tapacurá Catchment, Brazil. J. Urban Environ." *Journal of Urban Environment and Engineering*: 75–82.
- McBratney, Alex, Brett Whelan, Tihomir Ancev, and Johan Bouma. 2005. "Future Directions of Precision Agriculture." In *Precision Agriculture*.

- Moran, M. S., Y. Inoue, and E. M. Barnes. 1997. "Opportunities and Limitations for Image-Based Remote Sensing in Precision Crop Management." *Remote Sensing of Environment*.
- Panagos, P., K. Meusburger, C. Alewell, and L. Montanarella. 2012. "Soil Erodibility Estimation Using LUCAS Point Survey Data of Europe." *Environmental Modelling and Software*.
- Panagos, Panos et al. 2015. "Estimating the Soil Erosion Cover-Management Factor at the European Scale." *Land Use Policy*.
- Panagos, Panos, Christos G. Karydas, Ioannis Z. Gitas, and Luca Montanarella. 2012. "Monthly Soil Erosion Monitoring Based on Remotely Sensed Biophysical Parameters: A Case Study in Strymonas River Basin towards a Functional Pan-European Service." *International Journal of Digital Earth*.
- Panchard, Jacques et al. 2006. "COMMON-Sense Net: Improved Water Management for Resource-Poor Farmers via Sensor Networks." In *2006 International Conference on Information and Communication Technology and Development, ICTD2006*.
- Raine, S. R. et al. 2007. "Soil-Water and Solute Movement under Precision Irrigation: Knowledge Gaps for Managing Sustainable Root Zones." *Irrigation Science*.
- Renard, Kg et al. 1997. "Predicting Soil Erosion by Water: A Guide to Conservation Planning with the Revised Universal Soil Loss Equation (RUSLE)." *Agricultural Handbook No. 703*.
- Sarma, A. 2016. "Precision Irrigation-a Tool for Sustainable Management of Irrigation Water. In Proceedings of the Civil Engineering for Sustainable Development- Opportunities and Challenges, Guwahati, India, 19-21 December 2016."
- Thorp, K. R., and L. F. Tian. 2004. "A Review on Remote Sensing of Weeds in Agriculture." *Precision Agriculture*.
- Vrieling, Anton. 2006. "Satellite Remote Sensing for Water Erosion Assessment: A Review." *Catena*.
- Wischmeier, W.H., and D.D. Smith. 1978. "Predicting Rainfall Erosion Losses." *Agriculture handbook no. 537*.