

# TWINNING CONTRACT

BA 17 IPA ST 01 20



## Further Support to the Reform of Statistics System in Bosnia and Herzegovina



## MISSION REPORT

### Activity 1.3.1 F- Index of Production in Construction VI – R training Component 1.3.1 - Index of Production in Construction

Mission carried out by  
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## Table of contents

1. General comments .....	4
2. Assessment and results .....	4
3. Conclusions and recommendations .....	5
Annex 1. Terms of Reference for the current mission .....	6
Annex 2. Persons met .....	7
Signatures .....	8

## List of Abbreviations

BHAS	Agency for Statistics of Bosnia and Herzegovina
BiH	Bosnia and Herzegovina
CBBH	Central Bank of Bosnia and Herzegovina
EC	European Commission
EU	European Union
FBiH	Federation of Bosnia and Herzegovina
FIS	Institute for Statistics of Federation of Bosnia and Herzegovina
MS	EU Member State
RSIS	Institute for Statistics of Republika Srpska
RTA	Resident Twinning Adviser
ToR	Terms of Reference

## 1. General comments

This mission report was prepared within the EU Twinning Project "Further Support to the Reform of the Statistics System in Bosnia and Herzegovina". It was the sixth mission to be devoted to the Index of Production in Construction Subcomponent of the Project.

The purposes of the mission were:

- R computer software training with focus on IPC and SBS data

The consultants would like to express their thanks to all officials and individuals from Bosnia and Herzegovina met for the kind support and valuable information, which highly facilitated the work of the consultant.

These views and observations stated in this report are those of the consultant and do not necessarily correspond to the views of EU, BHAS, FIS, RSIS, CBBH, Statistics Denmark, Statistics Finland, Statistics Sweden and The Italian National Institute of Statistics.

## 2. Assessment and results

The Terms of Reference mentions the following expected output of the activity:

- Introduction to the statistical programme R;
- R and the Rstudio interface have been demonstrated, introductions have been made to data structures, data management, programming, data exploration and basic statistics plus visualization.

The aim was to give the opportunity to the participants to be able to use the code in R to replicate the analysis on SBS and STS microdata on construction sector shown in the previous missions.

The consultants have prepared slides and R scripts which were presented to the participants as an introduction to programming in R and how to use the extended set of possibilities provided by RStudio.

The topics included:

- The role of R and RStudio;
- Using R help function;
- Types of elements (numerical, character, logical, factor)
- Types of objects (vectors, matrices, data frames, and lists)
- Reading from and writing to data in R-format (RData and RDS) and delimited files (csv and related);
- The apply function and variations (sapply and lapply)
- Data wrangling using the dplyr and tidyr packages
- Visualisation using graphical functions from base R (plot) and introduction to the grammar of graphics with ggplot2 (including maps)
- Basic summary statistics

The room environment was working to a good level, and all participants have had the possibility to work on a functioning version of R/RStudio.

### 3. Conclusions and recommendations

- The participants are expected to use in R along your daily work;
- The participants are expected to replicate in R the present elaboration on IPC that is based on Excel framework;

Another mission on how to use R to implement the excel procedure to calculate IPC and how to use RJDemetra for seasonal adjustment is needed.

## Annex 1. Terms of Reference for the current mission

### Terms of Reference

**EU Twinning Project BA 17 IPA ST 01 20**

**Component 1.3.1. F - Index of Production in Construction (IPC)**

**Monday 16<sup>th</sup> (10:00 hrs) - Wednesday 18<sup>th</sup> January (12:00 hrs) 2023**

On-site meeting

**Venue: Integra Business Centre, Trg Republike Srpske No. 8, Banja Luka**

#### **Activity 1.3.1.F: Index of Production in Construction VI – R training**

##### **1. Mandatory results**

IPC produced according to the FRIBS (current EU regulation STS No 1165/98)

New methodology for calculation of Index of Production in Construction / IPC developed (by using value data and CPPI as deflator)

IPC produced and delivered to Eurostat (Non-Adjusted (NSA), Working-Day Adjusted (WDA) and Working-Day and Seasonally Adjusted (SA))

##### **Indicator / Relevant Milestones / Internal deadlines:**

Indicators for IPC published and delivered to Eurostat

##### **2. Purpose of the activity**

- R computer software training with focus on IPC and SBS data

##### **3. Expected output of the activity**

- Increased knowledge on how to use R for data analysis

## Annex 2. Persons met

### BHAS:

Fahir Kanlić, Head of Department for Industry and Construction Statistics

Anita Brković, Senior Advisor for Construction Statistics

Tanja Miović, Senior Officer for Industry Statistics

### FIS:

Damir Omanovic, Senior Advisor for Industry, Mining and Energy Statistics

### RSIS:

Želimir Radišić, Senior Officer for Construction Statistics

Danica Babić, Senior Officer for Structural Business Statistics

Sanela Borojevic, Senior Officer for Retail Trade

Andrea Erak-Latinovic, Head of Department for Industry, Energy and Construction Statistics

### RTA Team:

Niels Madsen, RTA

Biljana Strika, Interpreter

## Signatures

For the approval of the contents of this report, representatives from BHAS, FIS and RSIS as well as MS experts and the RTA sign here:



Component leader, BHAS



Component leader, RSIS



MS Expert



Component leader, FIS



RTA



MS Expert