

TWINNING CONTRACT

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Support to the reform of the statistics system in Bosnia and Herzegovina



MISSION REPORT

Activity 2.3.1:
**Assessment of current situation and plan for further
development of CPPI for Civil Engineering**

Component 2: Business Statistics
Sub-component 2.3: Construction Producer Prices Index

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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

Executive Summary

This was the first mission conducted under sub-component 2.3 Construction producer price index. The main aims of this mission was to assess the current status of producer price indices for construction in BiH and decide on practical aspects related to conduction surveys on construction producer price indices for civil engineering in BiH.

During the mission relevant activities under civil engineering for the planed surveys were identified as:

- Highways
- Roads
- Bridges
- Tunnels (optional)

The selection of relevant activities to enter the surveys were done with regards to volume in terms of turnover and with regards to relevance for civil engineering in BiH. It was at the same time decided not to conduct surveys for activities under civil engineering which constitute small proportions of the total volume of civil engineering activities in BiH. This is due to the fact that these activities would have a small impact on the total price development for civil engineering. Also the expected reliability of these figures would be significant lower because of lack of continuity for the reporting units.

It was decided to use the standard component method (SCM) for these surveys. Surveys based on the SCM requires standardized description of the underlying components for each activity and therefore it is recommended that an independent construction expert/consulting company is hired in under the project to draft both the relevant components and the corresponding weights.

This sub-component under the project consist of seven missions to BiH and a study visit to Denmark. To ensure an optimal flow of these missions time was spent during this mission to draft an activity plan for this sub-component. In connection to this, it was decided to move the drafting of the questionnaire to the 2nd mission since this activity is depending on the drafting of a bill of quantities for the underlying component in the survey (the components to be priced by the reporting units).

Experience and status on work done on construction producer price indices in both BiH and Denmark were presented.

1. General comments

This mission report was prepared within the EU Twinning Project ” Support to the reform of the statistics system in Bosnia and Herzegovina”. It was the first mission to be devoted to sub-component 2.3 within Component 2 of the project.

The purposes of the mission were:

- Assessment on the current situation on development of CPPI
- Overview of activities carried out from the end of previous Twinning Project
- Presentation of EU Member States experiences in production of CPPI for Civil engineering
- Overview over new FRIBS regulation and requirements on CPPI
- Analysis of practical aspects of conducting a survey
- Preparation of first draft questionnaire for a pilot survey
- Draft activity plan for pilot survey

The consultant would like to express his/her thanks to all officials and individuals met for the kind support and valuable information which he/she received during the stay in Bosnia-Herzegovina and which highly facilitated the work of the consultant.

This 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, INSEE, Statistics Finland and Croatian Bureau of Statistics.

2. Assessment and results

Current status of producer (output) price indices for construction

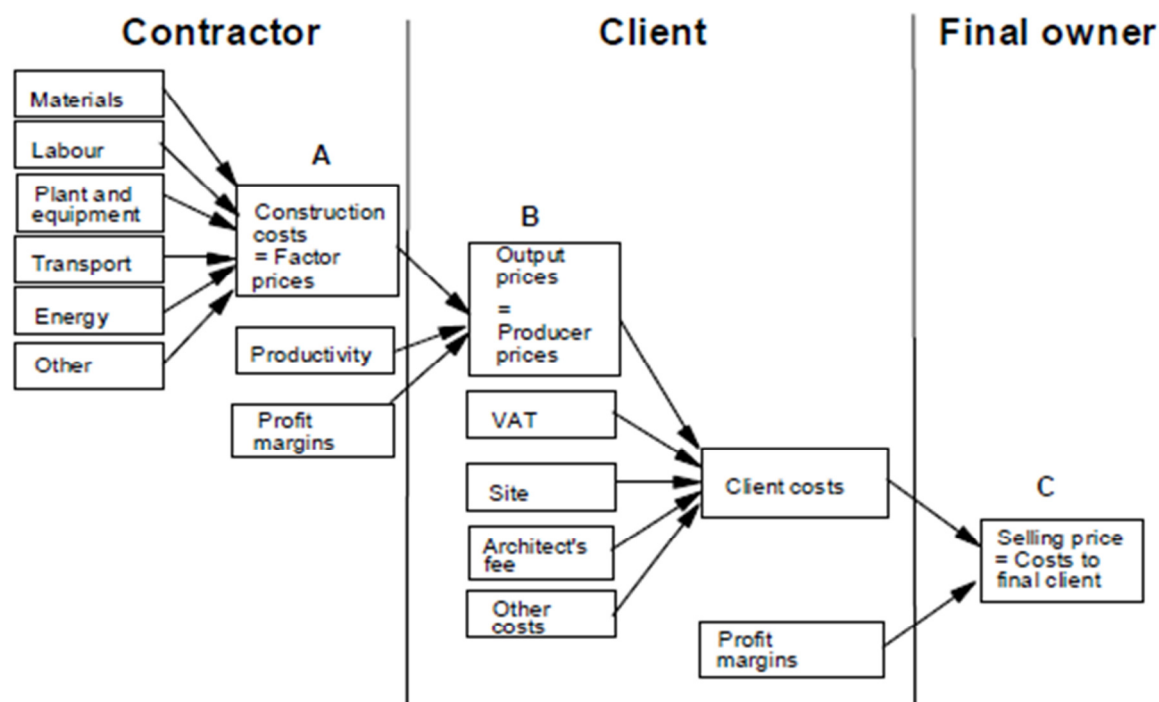
Construction producer price indices (CPPI) are important indicators for the analysis of the economic situation in countries. Likewise they constitute an important input in the national account as deflators for the national accounts figures for construction.

CPPI can be divided into three main areas:

- CPPI for buildings (F41)
- CPPI for civil engineering (F42)
- CPPI for specialised construction works (F43)

In Bosnia and Herzegovina work is well underway for CPPI for buildings (residential buildings). Methodology has been developed for the CPPI for residential buildings during and after the 2014-2016 Twinning Project "Support to the State and Entity Statistical Institutions, phase VI".

This includes the description of the CPPI survey process and design of the questionnaire form and drafting of the instructions to the respondents. The population is defined by the NACE Rev 2 groups 42.1 and 42.3 and the sample is drawn from the business register in BiH using well-defined thresholds defined by size of turnover (500.000 km) and number of employees (20+). Additional information on the nature of the specific construction projects are used to ensure that the sample only includes data which is consistent with the definition of producer price (output price), that is, exclusion of final owner entities where the price corresponds to the selling price instead of the output price (see figure below).



In 2016 a pilot survey on CPPI for residential buildings was conducted in all three institutions of BiH. More than 400 enterprises were included and the result was a response rate at 54 pct. The relatively low response rate is closely related to cases of entities classified wrongly within the relevant NACE groups.

The entities were asked to give prices on 30 components (some with sub-components) – components which together form a standard residential building in BiH. These 30 components was defined after an analysis of data on issued building permits in BiH by an independent consulting company (IPSA) which drafted a bill of quantities with 30 components to be priced.

The collected prices were used in a so-called standard component method, where well-defined construction works (the 30 components) are priced by the respondent period after period. The reporting units must report prices for some or all components, though they can introduce new components deemed relevant and these items then may be included at a later stage in the bill of quantities.

Publication of CPPI for residential buildings has already been made by FIS and publication from the remaining two statistical institutions is expected to take place in 2018.

Practical aspect for developing CPPI for civil engineering and drafting the questionnaire for the pilot survey

In BiH work on construction producer price indices for civil engineering will start under this project. The overall methodology for this work will share similarities with the methodology developed under the work of establishing CPPI for residential buildings, but adjustments are expected

During the mission it became clear that the optimal methodology to be followed in compilation of construction producer price indices for civil engineering would be the *Standard Component Method (SCM)*. The following steps should be followed:

- Defining the relevant representative activities to be compiled

- Brake down of the activities into well-defined components (bundles of standardized homogenous components) unless the activity defined are of a simple character
- Include independent construction consultants in the work of describing the underlying components for each relevant activity
- Resolve possible weight issues related to computing an overall index for CPPI for civil engineering

To facilitate the discussion on which civil engineering activities for which an index shall be compiled an overview of civil engineering activities on a 4-digit CPA-level was constructed (see annex 3). This list was enriched with information on turnover values from BiH SBS 2016 to identify the largest areas of civil engineering in BiH. From this overview it became clear that activities related to roads, highways etc. constitute by far a majority of the total turnover. Other activity areas were either insignificant in volume or rather small compared to the total volume of activities within civil engineering. The BC experts suggested that bridges and tunnels is should also be included in the survey. This was based on their assessment of what is important for civil engineering in BiH.

It was agreed that initiation of surveys for activities where the volume is very little wouldn't be feasible because:

- The sample size would be too small
- Lack of continuity – reporting units do not perform the activity every period and the quality of the reported prices would be affected by this
- The share of the total civil engineering activities is low, so the invested work at the statistical institutions and the burden for the reporting units would be too big compared to the explanatory gains for including these activities

This led to a common agreement among the statistical institutions and the MS experts to focus on the most significant civil engineering activities. It was recommended and agreed to focus on the following 4-digit NACE:

- 42.11. Roads and highways
- 42.13. Bridges and tunnels

From this, it was agreed to work towards four (maybe only three) sample surveys for: Highways, roads and bridges (and maybe also tunnels).

For these three (four) activities SCM questionnaires should be developed. Questionnaires using the standard component method must contain a number of well described standard components which together adds up to the civil engineering construction (highway, road or bridge). For this independent construction experts are needed. These independent construction experts should draft bill of quantities (with description of each relevant component of the construction) for each of the selected activities and subsequently these components should be integrated in the questionnaires used for the surveys. That is the reporting firms will be asked to report prices for the components (all components relevant for the firm).

It was agreed that a drafting of the questionnaire would have to be postponed until the drafting of the bill of quantities is finalised.

Presentation of RSIS' it system

During the visit to BiH the consultants were given a presentation of the it system used at the Institute for Statistics of Republika Srpska. The conclusion from this presentation was that even though different it systems are used in BiH they share a lot of similarities and are build on the same methodological demands.

Overview over new FRIBS regulation and requirements on CPPI

The present EU regulation relevant for construction price index includes only construction cost indices (which follows the input approach similar to price A in the figure above). But the regulation allows the use of construction price index (which follows the output price approach similar to price B in the figure above) as a proxy if the construction cost index is not available.

This index should be transmitted on a quarterly basis after 90 days (plus 15 days for smaller countries) and should be delivered with 2010 as the base year.

The current regulation is Council Regulation (EC) no 1165/98 of 19 May 1998 concerning short-term statistics (amended in 2005).

In the near future a new EU regulation is expected to be introduced. This regulation (FRIBS) calls for the transmission of the construction producer price index instead of the construction cost index as the required index, though the construction cost index can be submitted if no CPPI is available.

Regardless of which regulation is valid it has no requirement concerning indices for civil engineering, but only for price index for buildings.

Presentation of the Danish experience in production of construction producer price indices

Statistics Denmark has for the last couple of years worked on the establishment of statistics on the construction producer price indices for buildings and civil engineering. Creating indices for construction producer prices at Statistics Denmark has started for two reasons:

1. The Danish Productivity Commission came with a recommendation to improve the data used for compiling national accounts
2. New EU regulation (FRIBS) requires construction producer price indices instead of construction cost indices

The Danish Productivity Commission called for improved data for the compilation of national accounts for the construction area and as a result Statistics Denmark set up a working group with representatives from Business Associations, State agencies and Statistics Denmark with the aim of reaching the best possible solutions concerning new statistics for the construction area. One of the solution was to establish indices for construction producer prices.

The new EU regulation only underlined the need for these indices.

Different methodologies have been considered in this work and two methods have been chosen for the compilation of construction producer price indices – two methods because different areas for the construction sector require different approaches. The two methods and the areas where they are used are:

Hedonic regression: The hedonic regression method is used only for estimating prices for residential buildings (one-family houses). Here the producer price index is calculated from estimated prices from the hedonic regression. This regression uses information on the price and the explanatory variables for every residential building (one-family houses) build within a quarter.

Statistics Denmark collects prices (approx. 350 every quarter) from five larger firms engaged in standard house construction. These prices are matched with information from the Danish Building Register by use of the address information attached to the prices. In this way Statistics Denmark is able to construct a useable dataset with prices and characteristics to enter a hedonic regression.

This is done on a quarterly basis and the construction producer price index for one-family houses is expected to be published this year.

Hedonic regression for CPPI for residential buildings is also used by Sweden, Germany and Norway.

Standard components method (SCM): The standard component method is used for all the other indices to be calculated for the construction area (when it concerns construction producer prices). With this method bundles of standardized homogeneous components are identified and re-priced every quarter or year.

Construction producer price indices following this method are:

- CPPI for residential buildings (apartments). The index is under development and is expected to be calculated on a quarterly basis.
- CPPI for other buildings (office and light industrial). This index is currently under development using information from an independent consulting entity.
- CPPI for refurbishment and maintenance. Indices for this area are already in production at Statistics Denmark and rely on price reports from approx. 350 reporting units once a year. The reporting units report approx. 3.000 prices every year and Statistics Denmark publish once a year a CPPI for refurbishment and maintenance in total and six sub-indices for the following groups:
 - Electrical installation works
 - Plumbing, heat and air-con works
 - Carpentry works
 - Building completion works
 - Roofing works
 - Bricklaying works
- CPPI for civil engineering: For civil engineering Statistics Denmark calculates experimental indices for highways and simple roads using information from the Danish Road Directorate and from an independent consulting firm. For other areas (railways, pipelines for fluids, electrical power lines and telecommunication lines) Statistics Denmark first tried to get information from the “clients” but it was concluded that this data wouldn’t be sufficient to calculate reliable indices for the areas. The solution will most probably be pricing of components from construction firms.

Draft activity plan

A draft activity plan has been prepared and discussed. This can be seen in annex 4. As regard of the original activity plan, it was agreed to reschedule all missions because the drafting of the questionnaire would have to await help from an independent construction expert.

3. Conclusions and recommendations

Producer price indices for civil engineering for BiH should be compiled using the standard component method (SCM).

The work on CPPI for civil engineering should be concentrated on the following activities; highways, roads and bridges (maybe also tunnels).

The three (four) activities must be divided into relevant components by an independent construction expert/consulting company. It is recommended by the MS Experts that this consulting company is chosen and financed by the project.

New questionnaires should be drafted. This will have to await the input from an independent construction expert.

Actions needed for moving forward as well as for preparing the next mission:

Action	Deadline	Responsible person
Definition of components (EA) and weights (incl. consultation with independent construction expert/consulting company for bill of quantities)	Before 2 nd mission	BHAS, FIS and RSIS
Define target population (All enterprises in the chosen 4 digit NACE groups)	Before 2 nd mission	BHAS, FIS and RSIS
Preparation of draft version of questionnaire	Before 2 nd mission	BHAS, FIS and RSIS

4. Topics for the next mission

Action	Deadline	Responsible person
Discuss bill of quantities (components and weights)	During 2 nd mission	BiH counterpart + MS experts
Discuss target population	During 2 nd mission	BiH counterpart + MS experts
Review and propose changes of the draft questionnaire	During 2 nd mission	BiH counterpart + MS experts
Instructions for filling in the questionnaire prepared	During 2 nd mission	BiH counterpart +MS experts
General rules for sample selection	During 2 nd mission	BiH counterpart + MS experts

Annex 1. Terms of Reference

Terms of Reference

EU Twinning Project BA 15 IPA ST 01 17

Component 2: Business Statistics

Sub-component 2.3: Construction Producer Price Index

12-15 March 2018

**Activity 2.3.1: Assessment of current situation and plan for further
development of CPPI for Civil Engineering**

1. Mandatory result and benchmarks for the component

Mandatory result:

- Construction producer price index for division F42 – Civil engineering works produced by 8th project quarter

Benchmarks:

- Plan for development of producer price index produced by 1st project quarter
- Draft questionnaire and supporting documents for pilot survey prepared by 1st project quarter
- Pilot survey conducted by 2nd project quarter
- Results of pilot survey analyzed by 2nd project quarter
- Criteria for an IT application defined by 2nd project quarter
- Plan for regular production developed by 4th project quarter
- Index compiled by 5th project quarter
- Index made available to users by 6th project quarter
- Methodological document on producer prices in construction developed by 8th project quarter
- Quality report for producer prices in construction developed by 8th project quarter

2. Purpose of the activity

- Assessment on the current situation on development of CPPI
- Overview of activities carried out from the end of previous Twinning Project
- Presentation of EU Member States experiences in production of CPPI for Civil engineering
- Overview over new FRIBS regulation and requirements on CPPI
- Analysis of practical aspects of conducting a survey
- Preparation of first draft questionnaire for a pilot survey
- Draft activity plan for pilot survey

3. Expected output of the activity

- Current status of producer (output) prices in construction assessed
- EU experiences in producing CPPI for Civil engineering presented
- Practical aspects for development of CPPI for Civil engineering examined
- First draft questionnaire for the pilot survey developed
- Draft activity plan prepared
- Input provided to the ToR of next activity

Annex 2. Persons met

Agency for Statistics of BiH (BHAS)

Fahir Kanlic, BHAS

Dženita Babić, BHAS

Anita Brković, BHAS

Institute for Statistics of Federation of BiH (FIS)

Edina Dulic, FIS

Nusreta Imamovic-Kaljanac, FIS

Institute for Statistics of Republika Srpska (RSIS)

Želimir Radišić, RSIS

MS Experts

Martin Ausker, Statistics Denmark

Janni Stavad, Statistics Denmark

Twinning Project Administration

Katja Møller Hjelvang, RTA

Demka Šahinpašić, RTA Assistant

Svjetlana Pavicic, Interpreter

Annex 3: List of possible activities and components

F42 Civil Engineering in total for Bosnia and Herzegovina								
Sub indices			Activities (sub-indices)			Components (Elementary Aggregates (EA))		
Number (Nace 4)	Description	SBS values 2016 (BiH)	Number	Description	Weights	Number	Description	Weights (EA weights)
42.11	Roads and motorways	947.617.509 75,13%	42.11.01	Motorways				
			42.11.02	Roads				
			xx.xx.xx	E.g. Street				
			xx.xx.xx	E.g. Other vehicular way				
			xx.xx.xx	E.g. pedestrian way				
			xx.xx.xx	E.g. Airfield runway				
42.12	Railways and underground railways	3.761.703 0,30%	xx.xx.xx	E.g. Railway				
			xx.xx.xx	E.g. Underground railway				
42.13	Bridges and tunnels	91.682.680 7,27%	42.13.01	Bridges				
			42.13.02	Tunnels				
42.21	Utility projects for fluids	33.690.865 2,67%	xx.xx.xx	E.g. Utility constructions for fluids				
			xx.xx.xx	E.g. Long distance pipelines				
			xx.xx.xx	E.g. Local pipelines				
			xx.xx.xx	E.g. Irrigation systems (canals)				
			xx.xx.xx	E.g. Water mains and lines				
			xx.xx.xx	E.g. Water treatment plants				
			xx.xx.xx	E.g. Sewage disposal plants				
			xx.xx.xx	E.g. Pumping stations				
42.22	Utility projects for electricity and telecommunications	45.065.891 3,57%	xx.xx.xx	E.g. Long distance electricity power lines				
			xx.xx.xx	E.g. Long distance communication lines				
			xx.xx.xx	E.g. Local distance electricity power lines				
			xx.xx.xx	E.g. Local distance communication lines				
			xx.xx.xx	E.g. Power plants				
42.91	Water projects	40.225.225 3,19%	xx.xx.xx	E.g. Coastal construction				
			xx.xx.xx	E.g. Port construction				
			xx.xx.xx	E.g. Dams				
			xx.xx.xx	E.g. Locks related hydromechanical structures				
42.99	Other civil engineering projects	99.341.431 7,88%	xx.xx.xx	E.g. Mining and manufacturing				
			xx.xx.xx	E.g. Sports and recreation constructions				
			xx.xx.xx	E.g. Other civil engineering constructions n.e.c.				
Total		1.261.385.304						

Annex 4: Draft activity plan

Activity Plan for development of Quarterly CPPI for F42 Civil Engineering						
Component 2: Business Statistics						
Sup-component 2.3: Construction Producer Price Index						
No	Main Activity	Components of main Activity	Est. date of realization (provisional)	Participants	Responsible institution	Note
1	ACTIVITY PLAN AND TIMETABLE	1. Draft activity plan for CPPI survey agreed	End of 1st mission			
		2. Updated activity plan for CPPI survey agreed	Continuously			
2	SAMPLE	1. Selection of main activity groups (CPA)	End of 1st mission			
		2. Definition of components (EA) and weights (incl consultation with independent institution for bill of quantities)	Before the 2nd mission			
		3. Define target population (All enterprises in the chosen 4 digit NACE groups)	Before the 2nd mission			
		4. Draw sample (reporting units) for the pilot survey based on the criteria defined for F41	Before 3rd mission			
3	QUESTIONNAIRE	1. Preparation of draft version of questionnaire	Before 2nd mission			
		2. Review and proposed changes of the questionnaire	2nd mission			
		3. Final version adopted	3rd mission			
		4. Instructions for filling in the questionnaire prepared	2nd mission			
4	DATA COLLECTION	1. Timetable with deadlines for conducting the pilot survey on CPPI (delivery of questionnaires to reporting units, data collection, process, data entry ect.)	3rd mission			
5	DATA EDITING AND PROCESSING	1. List of controls for micro data checking	After pilot survey. (4th mission)			
		2. Data editing				
		3. Non response treatment				
		4. Imputation methods				
		5. Outlier checking and treatments				
		6. Discussion with MS experts about 1.-5. and topics/questions related to the results of the pilot study				
6	CALCULATION AND ANALYSIS OF RESULTS	1. Determination of methods for calculation of CPPI indices	5th mission			
		2. Procedures for calculation of indices				
		3. Quality indicators				
		4. Calculation of indices based on data from pilot survey				
		5. Discussion with MS experts about results from calculations				
7	REVISION POLICY	1. Revision of input data and output results	7th mission			
		2. Data confidentiality treatments				
8	PREPARATION OF REGULAR CPPI SURVEY FOR F42	1. Implementation of experiences from the development phase to actual production (adjustments in questionnaire, preparation of data for base year etc.)	6th mission			
		2. Plan for regular survey	5th and 6th mission			
		3. Preparation of output tables	6th mission			
		4. Preparation for publication	6th mission			
9	DOCUMENTATION	1. Prepare methodology paper (in accordance with EU standards)	7th mission			
		2. Preparation of quality report.				

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:

Date: 15th of March 2018

Component leader, BHAS

Component leader, FIS

Component leader, RSIS

RTA

MS Expert

MS Expert