TWINNING CONTRACT

Support to the State and Entity Statistical Institutions, phase V

Bosnia-Herzegovina

MISSION REPORT

on

Construction Statistics

Component no. 1 Activity 1.3.4

Mission carried out by   Roberto Iannaccone, ISTAT
                         Erik Nielsen, Statistics Denmark

January 21th – January 25th, 2013

Version: Final

Author's name, address, e-mail

Roberto Iannaccone
Istat
Viale Liegi 13
Rome
Italy
Tel. +39 06 46737309

Erik Nielsen
Statistics Denmark
Sejrøgade 11
DK-2100 Copenhagen Ø
Denmark
Tel. +45 39 17 35 41
eni@dst.dk

Table of contents

List of Abbreviations

BiH	Bosnia-Herzegovina
BHAS	Agency for Statistics of Bosnia and Herzegovina
FIS	Institute for Statistics of Federation of Bosnia and Herzegovina
RS	Republika Srpska
RSIS	Institute for Statistics of Republika Srpska
ToR	Terms of Reference

Executive Summary

The topic of this mission was support for regular compilation of Index of Production in Construction (IPC) and discussion on method for Construction Cost Index (CoCI).

1. Analyses of methods used for calculation of IPC:
    a) Discussion of possible method for calculation of IPC
    b) Agreement on method on the entity and the state level
    c) Deflation of IPC, EU requirements and experience from other countries
    d) Discussion with RSIS staff from National Account Department (on deflation and the questionnaire)
    e) Deflation method, proposal from experts
2. IPC questionnaire, sample design, data editing, etc.
    a) Review of the quarterly questionnaire used in the survey
    b) Experts's proposals for questionnaire and adoption of new version
    c) Sample frame

    d) Data editing and processing
    e) Analysis of results
3. Start of discussion of CoCI
    a) EU requirements concerning CoCI
    b) Italian and Danish experience regarding CoCI
4. Preparation of the list of activities to be done before the next mission
5. Planning of 5th mission and preparation of the list of topics for the next mission

General comments

This mission report was prepared within the Twinning Project „Support to the State and Entity Statistical Institutions, phase V". It was the fourth mission within subcomponent 1.3 on construction statistics of the project. The main focus of the mission was Index of Production in Construction (IPC), with a large part of the focus on the questionnaire. Furthermore, there was a start of the discussion on method for Construction Cost Index (CoCI).

The views and observations stated in this report are those of the consultants and do not necessarily correspond to the views of EU, BHAS / FIS / RSIS or Istat/Statistics Denmark. Furthermore, both consultants would like to express thanks to all officials and participants for the kind support, the involvement and valuable information which we received during the stay in Bosnia-Hercegovina.

1. Calculation of IPC

1.1. Method for calculation of IPC

There was a discussion of advantages and disadvantages of the different methods for calculation of IPC according to the Guidelines for compiling IPC written by the Task Force on IPC. Based on this discussion and experts' opinion, BiH statistical institutions have available data on effective hours worked from SBS survey (from 2010 reference year- total hours worked for workers on construction sites and for administrative and management workers) and Value Added (for 2010 and 2011 as reference year). Also, data on effective hours worked are available from existing monthly surveys on construction (GRADJ 21- only for construction workers on construction sites).

These data series are available for the entities from 2006 in harmonized way. BiH have a rough time series for IPC, but calculated using value of works

It was decided to use Hours Worked as input for calculation of IPC. This method will be used on the entity and on the state level.

The tasks were:
    1. How to calculate/delimite Hours Worked.
    2. How to calculate labour productivity (for deflation).
    3. Changes of the questionnaire for fulfillment of the calculation of IPC.

Experts pointed out that, for the purposes of IPC calculation (non-deflated), Hours Worked need to refer only to workers on building sites (excluding administrative people, etc.) and effective hours (excluding holidays, sickness, etc.):

- Hours worked will be collected for residential and non-residential buildings and civil engineering in general but BiH was aware that the future regulation will be based on NACE classification, section F.
- Hours worked, as well as all questions in the questionnaire, are limited to work done only on the territory of BiH

1.2. Deflation

The method for calculation of IPC using Hours Worked as input needs an adjustment for productivity, as explained by the Guidelines.

The experts showed how the calculation of labour productivity is carried out in Denmark and Italy. In both countries the productivity factor calculation is performed annually by National Accounts Department, using value added at basic prices and hours worked for each economic sector, e.g. in 2012 estimations was based on labor productivity up to 2011. This means that a forecast for the current year is needed. In the Guidelines it is an accepted method.

Concerning the split up between building construction and civil engineering it is difficult to be done, but the Guidelines also accept the using of total labor productivity. This is especially important for small countries like BiH, because they are obliged to produce IPC only for the total level- Total construction F (section level).

The experts recommended that:
- the best option would be if the calculation of the labour productivity could be done by National Accounts in the entities and after common instructions.
- a calculation of labour productivity for both building construction and civil engineering.
- a benchmark of the forecasts should be carried out yearly.

1.3. Meeting with RSIS staff from National Account Department

In the meeting with RSIS staff from National Account Department (NA) it was discussed both the calculation of labor productivity and the questionnaire.

Concerning the labor productivity NA said that they were not performing this calculation for the moment. NA was of the opinion that it will be done in the future.

NA informed us that they should calculate a quarterly Value Added for the construction sector on the basis of STS surveys. SBS calculated an annually Value Added for the construction sector – based on 25 % of the enterprises in the construction sector.

Concerning the questionnaire:
1. NA expressed that they need all information in the quarterly questionnaire for the calculation of value added;
2. NA have not decided which method they will use (between expenditure and production side) for GDP calculation on the quarterly basis
3. There were no agreements on compromises for reducing the details for some variables in the questionnaire or on the opportunity to send the full version just to bigger companies. NA proposed that the question should be decided on a higher level
4. The experts' proposals was, (statisticians from all three institutions should accept), special meeting of Construction statisticians should be organized with the statisticians from NA Department from all three statistical institutions. On this meeting it will be decided whether additional questionnaire (as Annex) will be used, beside quarterly questionnaire for construction, for NA needs or the questions for NA will be retained in construction quarterly questionnaire. Final expert opinion is to have it as an Annex, because their questions are typically for people from accounting departments in enterprises. Today, only 5 % of the enterprises are answering the NA questions.

1.4. Proposal for deflation method

The experts proposed that the entities should compare VA data used in NA and/or SBS data. If there is no big difference between these data, data from SBS survey for Value added and hours worked will be used calculation of productivity factor as deflation method.

2. The quarterly questionnaire

2.1. Discussion of questionnaire and adoption of new version

BiH statisticians explained that for 2013 they will only use the monthly questionnaire (GRADJ 21) for the entities and BD. From the beginning of 2014, monthly report will be replaced with quarterly report for calculation of IPC. So it was a precondition for the revised quarterly questionnaire that there will be continuity with the previous surveys and it should be used the same one for both the entities and for BD– only one version.

The experts had earlier underlined that the old version of quarterly questionnaire looked like a questionnaire for structural business survey (SBS) and was too complicated to be filled by enterprises (at least two different departments in the enterprise should be involved in data filling), especially for some variables.

Therefore and after a discussion the new version should be reduced in the number of questions and only focused on the calculation of IPC. The problem concerning the NA questions remained as an internal discussion.

It was decided that:
1. In all tables, using NACE-classification the division has been replaced with only building construction and civil engineering in general.

2. In table 1 the variable is not *Turnover* but *Value of construction works put in place*, asking for value in reference quarter and cumulative value (it is not a STS requirement but the collection for this information will make possible the continuity with the these data from monthly survey- GRADJ 21 and it can also be used in controlling the data). In the draft version the building construction is divided into residential and non-residential buildings and civil engineering is divided into transport and other civil engineering. All are divided into new constructions and repair and maintenance.
3. Table 2, 3, 6, 7 and 8 from old version of questionnaire are deleted because they were out of scope for IPC
4. Table 4 (Persons employed) remains because it can be used as control variable and internal use
5. Table 5 (Hours worked) remains for the calculation of IPC
6. A table is introduced from monthly GRADJ-21 questionnaire about completed dwellings for the continuity

So the questionnaire is reduced from 9 to 5 tables. For NA needs experts proposed that an annex could be used to the quarterly questionnaire for construction.

Final version of quarterly questionnaire for IPC will be adopted by all three statistical institutions after this mission.

The FIS statisticians generally accepted questionnaire proposal, but they will consider a further breakdown of civil engineering division. It will be agreed in final version of this questionnaire by all three statistical institutions.

Furthermore, there was a discussion concerning the risk of double counting for hours worked because of main contractor and sub-contractors. Experts' proposal was that formulation concerning this problem in the monthly questionnaire will also be very clearly and precisely defined in the instructions for filling the quarterly questionnaire. Representatives from all three statistical institutions agreed.

2.2. Survey design - coverage, sampling and data collection etc.

There was a discussion on how to establish a common method for sampling:

1. In the current sample used in the entities for the monthly surveys (GRADJ 21) the cut-off criteria is different. In the Federation the cut-off criteria is number of employees (10 and more), while in RSIS the cut-off criteria is turnover (500.000 KM and more). Those variables are used from Statistical Business Register. All three statistical institutions will perform simulation of sample design based on cut-off method using 2 stratification variables: number of employees and turnover from SBR. Final decision will be made together with people from sample department.
2. The observation unit will be enterprise and KAU and they will be updated/extracted from SBR.
3. The coverage should be the total NACE, section F. It was discussed about division 43 of NACE Rev.2 classification-specialized construction activities. In order to include companies with specialized construction activities in the sample, all classes (41, 42 and 43) will be included for sample design procedures. Expert explained that all enter-

prises registered in division 43 will perform works on the building constructions or civil engineering. It won't be problem for IPC calculation for the total.

4. Class 41.10 will be excluded from the scope.

The sampling method will be discussed together with sample methodologists from all three statistical institutions trying to harmonize the method in both entities and BD (cut-off criteria, method of sampling) after some simulation exercises.

3. Detailed Plan for quarterly survey on Index of Production in Construction

No	MAIN ACTIVITY	COMPONENTS OF MAIN ACTIVITY	DATE OF REALIZATION	PARTICIPANTS	RESPONSIBLE INSTITUTION
center	SECTOR FOR BUSINESS STATISTICS				
PLAN FOR DEVELOPMENT OF REGULAR QUARTERLY SURVEY ON INDEX OF PRODUCTION IN CONSTRUCTION THROUGH IPA 2008 PROJECT				

No	MAIN ACTIVITY	COMPONENTS OF MAIN ACTIVITY	DATE OF REALIZATION	PARTICIPANTS	RESPONSIBLE INSTITUTION
1	*QUESTIONNAIRE*	1. Preparation of draft version of quarterly questionnaire based on comments and agreements 2. Instructions for filling out the questionnaire	15-02-2013	BHAS;FIS;RSIS	BHAS;FIS;RSIS
		3. Meeting with National Accounts Department concerning questions for stocks and investments for their needs	20-02-2013	BHAS;FIS;RSIS	BHAS;FIS;RSIS
		4. Preparation of final version of quarterly questionnaire and instructions based on comments and agreements	28-02-2013	BHAS;FIS;RSIS	BHAS;FIS;RSIS
		5. Send prepared documents from point 4 to experts	11-03-2013	BHAS	
		6. Feedback from experts	15-03-2013	IPA EXPERTS	IPA EXPERTS
2	*SCOPE OF SURVEY*	1. SBR population - observation units: Enterprise and LKAU **2. Meeting with methodologists from Sample department where will be defined a common criteria for coverage and sampling method.**	31-03-2013	BHAS;FIS;RSIS	BHAS;FIS;RSIS
		3. Data comparison between National Accounts and SBS (Value Added)	31-03-2013	BHAS;FIS;RSIS	BHAS;FIS;RSIS
		4. Simulate IPC calculation and productivity factor for 2010-2011 based on data GRAĐ21 and SBS data (value added and hours worked)	15-04-2013	BHAS;FIS;RSIS	BHAS;FIS;RSIS

		5. Preparation of the list of reporting units by STS methodologists	20.12.2013.	BHAS;FIS;RSIS	BHAS;FIS;RSIS
3	*IT SUPPORT*	First version of module for data entry	15-05-2013	BHAS FIS RSIS	BHAS FIS RSIS
4	*SENDING OF QUESTIONNAIRES*	1. Send out the questionnaires to the reporting units	31-12-2013	BHAS;FIS;RSIS	BHAS;FIS;RSIS
5	*SURVEY PROCESS*	1. Sending questionnaires back from reporting units	10 days after the end of the quarter	BHAS;FIS;RSIS	BHAS;FIS;RSIS
		2. Data entering	5 days	BHAS;FIS;RSIS	BHAS;FIS;RSIS
		3. Calling and recalling of reporting units	5 days	BHAS;FIS;RSIS	BHAS;FIS;RSIS
		4. Data editing and data control, data analysis	5 days	BHAS;FIS;RSIS	BHAS;FIS;RSIS
		5. Send the data to BHAS	Last day in the month after the end of referent quarter	BHAS;FIS;RSIS	BHAS;FIS;RSIS
6	*DATA DISSEMINATION*	1. Data dissemination for the entities	25-30 days after the end of the reference quarter	FIS, RSIS	FIS, RSIS
		2. Data dissemination for the BiH	40 days after the end of the reference quarter	BHAS	BHAS
7	*FORMATS FOR DATA TRANSMISSION*	1. Prepared and adopted formats for data transmission to Eurostat	September of 2013	IPA EXPERTS	

4. Discussion of CoCI

4.1. Presentation of EU requirements and Italian and Danish experience

The experts presented the EU requirements and the current methods used in both countries. In both countries they calculate an input price index, using a similar approach. Both methods use data from other departments, labor cost and price variables. So the experts recommend that these departments in BiH shall be involved in the next mission.

4.2. Output Price Index

Furthermore, the expert stressed that Eurostat has plans for a change from input to output price index.

In Denmark three models were examined:
1. The matched model method (compare the price of constructions that are in fact identical from on period to the next).
2. The component cost method (breaks down constructions into elements until it is possible to compare like with like).
3. The hedonic method (try to isolate parts of the price that can be attributed to changes in quality and structure between two periods).

At the moment, there are not been taken a decision concerning which model to use.

5. Conclusions and recommendations

The conclusion is:

1. *The method will use Hours Worked as input for IPC calculation. IPC will be calculated on the basis of hours worked data, collected from quarterly survey on construction and deflated with labor productivity coefficient. This coefficient will be calculated based on VA and Hours Worked data from SBS survey (annual data that will be constant during the year). Problem of availability of SBS data for t-1 period (because data are available only for t-2 period) will be solved by correcting productivity factor from t-2 period with IPC for t-1 period.*
2. *The quarterly questionnaire from the pilot survey is modified to fulfill the EU-regulation requirements for IPC. Some tables are retained from monthly GRADJ-21 questionnaire, for internal purposes. Monthly survey (GRADJ-21) will be conducted in 2013, but will be replaced with quarterly survey from 2014.*
3. *The method for calculation, sampling design and questionnaire will be the same for both entities and BD*
4. *Future activities for the regular quarterly survey are planned.*

It is the experts' opinion that BiH with these initiatives will be able to fulfill the EU-demands concerning the calculation of IPC.

Actions needed for preparing and conducting the next mission or future missions

Action	Deadline	Responsible person/institution
Comparison of the values (NA and SBS) for calculation of productivity and decide which Value added to use	31.3.2013	BHAS-BD, FIS, RSIS
Testing a cut-off with both employment 10 or more and a turnover on 500 000 KM and comparing the result with the existing surveys	25.3.2013	BHAS-BD, FIS, RSIS
Preparing the meeting with National Accounts Department concerning questions for stocks and investments for their needs	20.2.2013	BHAS-BD, FIS, RSIS
Preparing the meeting with methodologists from Sample department where will be defined a common criteria for coverage and sampling method.	31.3.2013	BHAS-BD, FIS, RSIS
Simulating IPC calculation and productivity factor for 2010-2011 based on data GRAĐ21 and SBS data (value added and hours worked)	15.4.2013	BHAS-BD, FIS, RSIS

Topics for the next meeting, action 1.3.5

1. Analysis of methods used by EU-member countries and proposal for calculation of Construction Cost Index
2. Meeting with National Account, Labour and Price Departments
3. Discussion on available data source for calculation of Construction Cost Index
4. Discussion on the proposals and an agreement on quarterly Construction Cost Index
5. Discussion about scope, coverage and sample design
6. Experts recommendations for calculations of Construction Cost Index
7. Preparing activities for next mission

Annex 1. Terms of Reference

<div style="border:1px solid">

Construction Statistics
21st to 25th of January 2013
Terms of Reference - Activity 1.3.4.
EU Twinning Project BA 08-IB-FI-03
Institute for Statistics of Republika Srpska,
Veljka Mladjenovica 12d, Banja Luka

</div>

Component 1   Business Statistics

      1.1. Statistical Business Register

      1.2. Structural Business Statistics

      1.3. Construction Statistics

      1.4. Retail Trade Statistics

      1.5. Tourism Statistics

Component 2   Household Budget Survey

Component 3   Institutional Capacity

      3.1. Long term strategy

      3.2. Metadata and classification system development

      3.3. Promotion of dissemination

Benchmarks

A. Plan for development of pilot survey on building permits developed by the 2nd project quarter.(Fully achieved)

B. Plan for modification of existing surveys on construction statistics developed by the end of 2nd project quarter (Fully achieved).

C. Detail plans and preparation for pilot survey on building permits and regular production of construction statistics by 4th project quarter (Fully achieved).

D. Pilot survey on building permits conducted and existing survey on construction statistics improved by the end of 6th project quarter (fully achieved).

E. Relevant results analyzed and plan for regular surveys in force by the 8th project quarter.

F. Methodologies developed and documented by the 8th project quarter (end of September 2013).

Activity 1.3.4:

> Support for regular compilation of Index of Production in Construction (quarterly question-naire revision and adoption of new version based on experts' proposals; method of IPC calculation adopted based on experts' proposals).
> Improvement of the existing quarterly construction survey, bringing them in line with EU STS regulation and ensuring producing of construction statistics at state level.

The expected activities are:

- Analysis of methods used for calculation of IPC and proposal by experts
- Deflation method (CoCI, productivity factor, etc.)
- Discussion on the proposals and an agreement on quarterly questionnaire
- Analysis of scope, coverage and sample design
- EU requirements concerning Construction Cost Index (CoCI)
- Italian and Danish experience regarding Construction Cost Index (CoCI)
- Meeting with representative from NA department
- Plan of development of redesign IPC survey
- Preparing activities for next mission (preparation of the list of activities to be done before the next mission)
- Planning of 5th mission and preparation of the list of topics for the next mission

Expected output

- Mission report – summarized and detailed version completed
- Decision made regarding method for IPC calculation;
- Quarterly questionnaire revised
- Agreement on deflation method for IPC
- Plan for modified IPC survey developed

Participants

List of participants for first mission through IPA 2008 Twinning Project for sub-component 1.3 Construction statistics:

Agency for statistics of BiH

Fahir Kanlić, Senior Associate in Sector for Business Statistics, Department for Industry and Construction and coordinator for STS

Alen Bajramović, Head of Department for Services Statistics

Radomir Mutabdžija, Senior Associate in Sector for Business Statistics, Department for Industry and Construction

Institute for Statistics of Federation of BiH (FIS)

Nusreta Imamović, Head of Department for Industry and Construction and coordinator for STS

Edina Dulić, Senior Adviser for Construction statistics

Institute for Statistics od Republika Srpska (RSIS)

Želimir Radišić, Senior Associate for Construction and Housing Statistics and coordinator for STS

Experts

Erik Nielsen, Statistics Denmark

Roberto Iannaconne, ISTAT

Twinning Project Administration 00 (387) 33/911-992

Bente Dyrberg, RTA, 00 (387) 66/657-967

Djemka Sahinpasic, RTA Assistant, 00 (387) 63/721-104

Jelena Ljuboja, Interpreter

AGENDA		
Time	**Event**	**Purpose / detail**
21 January, 12:00	Welcome	Introduction by Experts on programme of the week
		(Erik Nielsen, Roberto Iannaconne)
	Analysis of methods used for calculation of IPC for BiH	Analysis of methods used for calculation of IPC for BiH.
		(BC participants)
22 January, 09:00	Continuation of the previous day- IPC calculation method and deflation	Discussion:
		Continuation of the previous day- methods for calculation of IPC
13:00		Experts' proposals of method for calculation of IPC
		Agreement on method on the entity and state level
		(BC participants, experts)
		Deflation of IPC- EU requirements, experience from Denmark and Italy (experts)
		Discussion with RSIS staff from National Account Department (current situation) (BC participants, experts)
		Deflation method- proposals from experts
23 January, 09:00	Continuation of the previous day- IPC questionnaire, sample design, data editing and	Review of questionnaire used in the survey
		Experts' proposals for questionnaire and adoption of new version based on that
		Sample frame (definition of the target population observation units and population frame based on SBR)
		Sample design (determination of the criteria for sample design)
		Data editing and processing (controls for micro data checking, non-response treatment, and outlier check and treatment)
		Analysis of results (determination of the grossing-up method and definition of the required quality indicators)
24 January, 09:00	Continuation of the previous day- IPC and CoCI	EU requirements concerning Construction Cost Index (CoCI)
		Italian and Danish experience regarding Construction Cost Index (CoCI)
		Meeting with representative from NA department
		Plan of development of redesign IPC survey
		Preparing activities for next mission (preparation of the list of activities to be done before the next mission)
	Next mission	a. Preparation of topics for the next ToR
		b. Homework elaboration for the next mission
		(BC Participants, Erik Nielsen, Roberto Iannacone)
25 January till 12:00	Debriefing	Other issues and evaluation of the summarized mission report
		(BC Participants, Erik Nielsen, Roberto Iannacone)