

TWINNING CONTRACT

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Support to the State and Entity Statistical Institutions, phase VI



FINAL MISSION REPORT

on

Activity 2.3.1.3

Testing of pilot survey results of the producer (output) prices in construction

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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
CPPI	Construction Producer Price Index
SCM	Standard Component Method
IPSA	IPSA Institute, private consulting company, Sarajevo, BiH
KM	Konvertible Mark
VAT	Value Added Tax

Executive summary

A typical building in BiH was identified based on IPSA bill of quantities (structure) which has the characteristics of the average newly constructed building in BiH. The following are specifications of the selected buildings:

Typical residential building	Multi dwelling building
Number of dwellings per building	3
Useful area per building	280 m ²
Levels	Basement level Ground floor level 1st floor level Attic level
Price class	Medium
Terrain	Average

The weights are identified from the bills of quantities (structure) provided by IPSA as well as construction works in the different categories. Prices exl. VAT for each construction activity will be collected from the construction companies.

CPPI will be calculated using modified German methodology.

One general questionnaire for Pilot survey on CPPI (by SCM method) will be to send to all reporting companies as it was concluded in last mission. The questionnaire and instruction made during this mission are both draft of final versions which later will be adjusted and formatted (layout) for the purpose of carrying out pilot survey.

For the purpose of carrying out pilot survey the population frame and definition of criteria for sample selection were established.

It was decided that the CPPI pilot survey will cover the last two quarter of 2015 (3rd and 4th quarter) and will be used as base year data.

A detailed plan for the pilot survey for the CPPI was adopted.

With regards to prices per m² for residential buildings, after data for both entities, RSIS and FIS, and District Brčko will be collected and processed calculation of prices per m² for residential buildings on the level of BiH will be possible. The data should be published for BiH and all entities due to national needs (legislative purpose). At the next mission it should be discussed on form and content of the most suitable publication.

1. General comments

This mission report was prepared within the Twinning Project "Support to the State and Entity Statistical Institutions, phase VI". It was the third mission to be devoted to producer (output) prices in construction within Component 2.3.1.3 of the project.

The purposes of the mission were:

- Decision with regards the publishing prices per m² for residential buildings
- Overview of bill of quantities and specifications prepared by IPSA Institute for two selected/typical constructions
- Identifying weights and construction activities according to bill of quantities and specifications prepared by IPSA
- Calculation of weighting structure for CPPI
- Non-response treatment in CPPI survey
- Finalization of questionnaire for Pilot survey on CPPI (by SCM method)
- Finalization of instructions for filling the questionnaires for Pilot survey on CPPI (by SCM method)
- Analysis of population frame and definition of criteria for sample selection
- Discussion with representative checking selected activities of a typical dwelling
- Adoption of General Plan for the development of CPPI with time table for the Pilot survey

The consultants would like to express their thanks to all officials and individuals met for the kind support and valuable information which they 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 or the Croatian Bureau of statistics and DESTATIS.

2. Assessment and results

During the mission the following outputs have been achieved:

- It was decided that prices per m² for residential buildings should be published as soon as data for the all entities will be available due to legislative requirements in BiH
 - Then prices per m² should be published as absolute prices per m² and not as an index in all entities and for the level of BiH
- Bill of quantities and specifications prepared by IPSA Institute for two selected/typical constructions were analysed, discussed and agreed
 - Multi dwelling building as the most representative in BiH should be use as base for weights and for selection of certain type of works
- Weights and construction activities according to bill of quantities and specifications prepared by IPSA were identified
 - Representative groups, sub-groups thereof and items/type of works within sub-groups (structure) according to value of work were selected
 - Items/type of works selected will be used for the purpose of Pilot data collection
- It was established that weighting structure for CPPI will be based on the value of work provided by IPSA bill of quantities for typical residential building and selected construction activities
 - The CPPI pilot survey for the last two quarter of 2015 will be used as base year data
- The modified German methodology will be developed for CPPI calculation with SCM
 - An example of the calculation of weighting structure and CPPI was produced

- It was decided that non-response treatment in CPPI survey will be covered on the next mission after pilot CPPI survey will be conducted
- Final version of Questionnaire for Pilot survey on CPPI (by SCM method) was finalized
- A draft version of final instructions for filling the questionnaires for Pilot survey on CPPI (by SCM method) was finalized
- The population frame and definition of criteria for sample selection were analysed and after discussion established
- Analysis of population frame and definition of criteria for sample selection
- A construction expert from “GP KRAINA” took part in the mission and it was discussed weather 30 items/types of construction work selected for typical residential dwelling to be collected in CPPI pilot survey for typical residential building are really representative and could be easily fulfil by construction company according to given specification and measurement units
- General Plan for the development of CPPI with time table for the Pilot survey was adopted

Decision with regards the publishing prices per m² for residential buildings

Collected prices per m² for new residential buildings sold for RSIS, FIS and District Brčko should be published starting with 1Q2016 for the all entities and on the level of BiH due to strong national needs i.e. for legislative purpose.

The law requires that the price for the land should be based on the average price for new residential buildings. Currently, only FIS data has being used for that purpose since data for RSIS and District Brčko were not available so far. Consequently, prices on the level of the BiH were not possible to calculate.

FIS compute prices per m² for new residential buildings as a sum of sold square meters over given period without weighting. The same system of calculation prices should be applied in RSIS and District Brčko.

For the BiH level the prices per m² for new residential buildings should start to be calculated as soon as data for all entities will be available. Weights should be used for computing prices per m² on the level of BiH.

As a weighting system the sum of sold square meters over all entities should be used to aggregate averages to the BiH level rather than using turnover data as it is recommended by the STS manual due to poor quality of SBS turnover data on activity level.

Format for exchange of data between entities and BHAS should be defined on the next mission.

Continuation of conducting this survey on average selling prices of new residential buildings per m² in all entities should be ensured even after CPPI using Standard Component Method (SCM) will be developed due to legal requirement on the state and entities level for this kind of price data.

Form of the first release on the prices per m² for residential buildings sold should be decided on the next mission.

Overview of bill of quantities and specifications prepared by IPSA Institute for two selected/typical constructions

The bill of quantities from IPSA can be found in annex 1.

The provided bill of quantities from IPSA is a model, covering all relevant construction activities for a block of dwellings from the ground work to the finishing processes.

Bills of quantity were calculated from available data in IPSA and are to be considered as model or synthetic.

Bills of quantity for two type of typical residential building in BiH of standard (average) quality, made by usually material were modelled in line with conclusions from previous mission. The specifications of the buildings are given in the table below:

Typical residential building	One dwelling building	Multi dwelling building
Number of dwellings per building	1	3
Useful area per building	137 m ²	280 m ²
Levels	Ground floor level Attic level	Basement level Ground floor level 1st floor level Attic level
Price class	Medium	Medium
Terrain	Average	Average

Two bills of quantities were received from IPSA for two typical residential buildings in BiH prior to this mission and analysed during mission.

According to provided 2 bills of quantities it was concluded that the structure of works in this two types of residential buildings is pretty much the same but construction companies are more engaged in building block of flats not in individual houses.

General agreements reached after discussion:

- Multi dwelling building as the most representative in BiH should be use as base for weights and for selection of certain type of works (see grey cells). Weights should be fixed over 3 to 5 years,
- Single bill of quantities should be used for the standard multi dwelling building,
- From the many possible construction activities the amount has to be broken down to a number to handle in a questionnaire. The space for the reporting units will be added on the questionnaire to adjust parameters or to choose other items from a given list of activities,
- Only one general questionnaire for the purpose of pilot data collection should be developed. This questionnaire has to cover all 30 items generally described, selected as most representative.

- General questionnaire will be sent to reporting units accompanied with instructions to report prices (exl. VAT) for the work they actually performed in reporting quarter in line with conclusion from last mission.

❖ **Identifying weights and construction activities according to bill of quantities and specifications prepared by IPSA**

The provided bill of quantity does cover activities, prices, amounts and values – as basis to identify items and weights.

Structure comprises shares of individual items (weights). Second sets of prices are company reported prices.

Within bill of quantity given by IPSA 296 type of works have been recognised which could be found in all offers but if certain activity/item is not representative it should be left it out.

At least one of representative item within sub-groups should be included in questionnaire in the first selection round.

Results achieved during mission:

- Single bill of quantities was identified
- Weights and construction activities (structure) was identified.
- Selection of representative groups and their sub-groups was done according to value of work which should be later use for calculation of weights
- For each of subgroup, one item – dominant activity was selected which could be found in all offers and with major influence on price changing. Selected items should be covered by the questionnaire

4 main groups of construction works identified are listed below:

1. ARCHITECTURE AND CONSTRUCTION WORKS (80% in structure)
2. PLUMBING AND SEWERS WORKS (4%)
3. ELECTRICAL INSTALLATIONS WORKS (12%)
4. HEATING INSTALLATIONS WORKS (4%)

17 sub-groups activities identified within each groups are listed below:

- ARCHITECTURE AND CONSTRUCTION WORKS (11 sub-groups selected out of 14 which will represent all 14 in this group)
- PLUMBING AND SEWERS WORKS (3 sub-groups selected)
- ELECTRICAL INSTALLATIONS WORKS (2 sub-groups selected)
- HEATING INSTALLATIONS WORKS (cooling excluded as non-typical) (only 1 sub-groups selected)

30 items identified within each sub-groups. Selected items should be covered by the questionnaire.

Bill of quantities with selected structure can be found in annex 3

Important issues agreed during mission:

- Blank rows should be added for companies if they are not able to report based on selected item but if new item accepted company should continue to reporting this item (should be put into instructions). Company can decide to put different quantities (1kg, 100 kg, etc.) for reporting prices in the given measurement units.
- Only one general questionnaire will be used for all reporting units and for all activities.
- The new developed questionnaire should be tested in one or two companies prior to pilot data collection (pilot of pilot)
- Section F and their divisions 41 and 43 should be covered to select or sample the reporting units from all possible companies
- Prices should be collected without VAT, some issues connected to missing should be covered in one of the upcoming missions

Calculation of weighting structure for CPPI

For calculation of weights typical residential buildings in BiH was identified based on IPSA provided bill of quantities (structure). A typical building should be one that has the characteristics of the average newly constructed building in BiH.

The specifications of the buildings are given in the table below:

Typical residential building	Multi dwelling building
Number of dwellings per building	3
Useful area per building	280 m ²
Levels	Basement level Ground floor level 1st floor level Attic level
Price class	Medium
Terrain	Average

The provided exemplary bill of quantities covers 296 typical construction activities for new residential buildings, prices for those activities in KM per unit, measurement units, amounts and values. The descriptive data was used as basis to identify representative items (construction activities) and weights for those items (activities).

Currently, there is no actual common nomenclature available to code construction activities or items in a way, reporting units could refer to get more or detailed information supporting the reporting work, the mostly used and known nomenclature would be from 1987 “Norms and Standards in the Construction - Buildings” (*original title: “Normativi i standardi u gradjevinarstvu - visokogradnja”*).

Internal code for each activity is given in the modelled bill of quantities from IPSA-institute, this code follows the European construction works structure.

For the moment, it was discarded to develop a complete nomenclature for construction activities. In Germany the construction activities follows given DIN-Norms and can be found in additional documents beside the questionnaire. The structure of bids and offers in Germany has to follow the structure provided by cost groups in the general DIN-Norms.

In case, there is no comparable structure of information available for BiH, for the chosen relevant items (construction activities) it has to be assumed, the reporting companies are able to deliver prices per unit.

The process to choose relevant items for the weighting structure is a difficult process that needs a lot of aspects to be taken into consideration:

- influence to the whole value of the construction process
- availability of prices for the chosen item
- space on the questionnaire
- standardized description
- number of parameters influencing the price per unit for the item
- reporting units should be able to deliver prices per unit for the items
- chosen items should be representative for a long time, at least for the next five years or until the weighting structure is refined.

The weight per item does have much influence of the quality of the whole index. Items with a considerable influence to the whole construction process should be included in the weighting structure. For each chosen item in the weighting structure a comparable price needs to be taken into the reporting system for the survey.

The chosen items and their calculated weights have a high influence to both, the absolute level and the change of the index.

Because only one questionnaire with standardized construction activities will be used for the survey, the number of items to include is limited. At the first step of developing a questionnaire, the number of items was limited to 30. Therefore, 30 representative items needed to be identified from the bill of quantities.

The process to find the right ones was done in three steps. First, the representative main groups of construction activities were identified. Second, within each main group the most important sub groups were selected. Third, within each sub group, the most influencing item or items were chosen to be as representative for the survey.

The main groups of construction activities were sort in descending order by proportion. The group ARCHITECTURE AND CONSTRUCTION WORKS has some about 80 % proportion and therefore the most influence. The higher the influence of a group is, the more it has to be represented in the index system.

At the level of the four main groups, the cut off border was set to 3 % proportion regarding to the total value of the bill of quantities. The total value was reduced by unforeseen works and VAT. According to the European specifications, VAT should be excluded from the reported prices. Also, the prices for the items being asked should be calculable for the reporting

companies. Following the cut-off-procedure, some main groups given by the bill of quantity were not taken into consideration because of lack of influence.

Depending on the influence of each subgroup and also as result from the discussion, within each main group several sub groups were identified to be considered as necessary to be surveyed in the index.

Depending on the influence (proportion regarding to the total value of each subgroup) and the verbal description of each item (construction activity) a decision was made to take it as considerable and necessary to be included in the survey or not.

The surveyed items should have two characteristics. They need to have remarkable influence to the whole construction process and the description of them should be verbalized in short. It should fit to the limited space in the questionnaire and it should be part of the calculation system for the reporting unit.

In the German reporting system, for each company the questionnaire will have an individualized description for each construction activity reported by each single company. Therefore, the parameters for each item differ by reporting unit, even for the same item.

After the items have been identified to be considered as relevant to be included in the quarterly survey, the weight for each item could be computed.

For the computation of the weights per item it would be recommended, to start on the level of item in relation to the whole value of the construction project. Items not to be considered as relevant for the index are not taken into the computation for the weighting system. Therefore, the total value of all items included in the calculation process differs from the original total value from the provided bill of quantity. The weighting structure covers only relevant items, sub groups and groups. Other construction activities not to be considered as relevant for the index will not be directly represented by the index.

As result of taking items away from the calculation, the weight of remaining items will relatively increase according to the reduced total value (Table: modelling weight structure – sub groups).

The computed weights per item can be added up to weights per subgroup. The weights of subgroup can be summarized to groups and all groups together represent the total structure and there influence of activities being relevant for the construction process of a multi dwelling building.

Because items or groups are not taken into consideration for the weight system, their values are not included in the structure (“Weight 3” in the table below). If items within groups or sub groups are taken out of the observation, the relative weight of the group or sub group will change also. This is due to the model of calculation and because not all items, i.e. construction activities, can be taken into the questionnaire.

To start with a weighting structure derived from the bill of quantities, “Weight 3” in the table below would be recommended, meaning only the values for relevant items and groups are taken into the calculation for the whole weighting structure.

In case of including the weights for not observed items into the calculation model, a decision must be made, how to share the not observed weights and where to add to.

Table: Modelling weight structure – sub groups					
Nr	sub groups within the main group ARCHITECTURE AND CONSTRUCTION	Value main group	Weight 1	Weight 2	Weight 3
1	EARTHWORKS	2.660,37	2,70%	2,84%	3,06%
2	CONCRETE AND AB WORKS	20.502,82	20,82%	21,86%	23,58%
3	MASONARY WORKS	10.487,48	10,65%	11,18%	12,06%
4	INSULATION WORKS	4.640,28	4,71%	4,95%	5,34%
5	ROOFING WORKS	13.212,97	13,42%	14,09%	15,19%
6	TILLING WORKS	3.093,14	3,14%	3,30%	3,56%
7	FLOOR LAYING WORKS	3.087,00	3,13%	3,29%	3,55%
8	PLASTERING WORKS	4.332,76	4,40%	4,62%	4,98%
9	WOODWORKS	10.244,10	10,40%	10,92%	11,78%
10	LOCKSMITH WORKS	613,80	0,62%	0,65%	-
11	EXTERIOR PLASTERING WORKS	9.825,86	9,98%	10,48%	11,30%
12	STONWORKS	4.873,72	4,95%	5,20%	5,60%
13	EXTERIOR DESIGN	3.821,00	3,88%	4,07%	-
14	OTHER WORKS	2.405,00	2,44%	2,56%	-
15	UNFORSEEN WORKS 5%	4.690,01	-	-	-
	BILL OF QUANTITIES WITH SPECIFICATIONS OF CONSTRUCTION AND CRAFT WORKS - TOTAL	98.490,30	100,00%	100,00%	100,00%

The following table shows as an example the weights per item within a subgroup. The weights are computed from the proportion of the “Total value (KM)” per item in relation to the sum of all items of all sub- and main groups.

table: modelling weight structure - items						
code	Work type	Unit measure	Quantity	Price per unit /KM/	Total value /KM/	weight per item and sum per sub group
I1	Removal of surface layer on a terrain d=30 cm due to construction of foundations and ground slab Removal of material from site	m ³	30,00	13,00	390,00	0,3380%
I2	Wide mechanical digging of the land in the part provided for the building, and in the part around the building, in the light slope, in the II category soil. Digging is done from the terrain level after it has been cleaned, to upper level of surface concrete subbase layer for AB slab, according to the foundations blueprint in the project design. ...	m ³	166,40	9,00	1.497,60	1,2978%
I3	Digging for the building's foundation strips. The strip dimensions are 0,6x0,6m:	m ³	14,45	9,00	130,09	0,1127%
I4	Covering the terrain with the dig-up soil, in the layers of 20 cm, after the concreting of the foundation strips	m ³	17,94	16,00	287,00	0,2487%
I5	Purchase of material, spreading and tamping of the subbase layer of gravel d=20 cm for the concreting of the new floor slab. Calculation per m3.	m ³	13,68	26,00	355,68	0,3082%
I	EARTHWORKS - TOTAL				2.660,37	2,3055% *
* The weight for EARTHWORKS shown in this table differs from weights shown in the table "Table: Modelling weight structure – sub groups" because all relevant items in all four main groups were taken into the calculation.						

Within each subgroup one or more items have to be chosen as representative for the group representing the change of price level. The decision about the representatives should be done with deliberation. The change of price of the chosen items will have much influence to the whole index.

In case only one representative item has been chosen to be as only representative for a subgroup, the whole weight of the subgroup will be given to this item for the further index calculation. To improve the quality of the calculation, if available from the reporting companies, also prices for other items could be taken into the calculation. Therefore, the weight given to the most representative item will be reduced by the weight(s) for other items, prices are being reported for.

This way to handle available information could help the reporting companies to deliver what they have and not only stick on the chosen representative items. Otherwise, the effort to handle the statistical data and the survey itself in the offices would increase.

For some of the items relevant to the construction process it would be difficult to compute a price per unit. Especially, if an item does include several sub-items or part processes. In such cases, an expert decision has to be made, whether an average price for this item will be taken into consideration or the item has to be removed from the structure.

Currently, a multi dwelling building has been identified as most representative type of construction item for BiH. Therefore, the weighting structure represents this type of building. Construction price indices based on this weighting structure can show the development of the average price for this type of building at the first glance. According to the Eurostat regulations, the index should represent the price for new residential buildings.

The representation of other types of buildings (nonresidential buildings, tunnels, bridges, etc) can supposed to be given but it is limited using this weighting structure.

In case of upcoming demands for the (national) usage of this index it could become necessary to compute additional weighting structures by type of building, given that appropriate data by type of building is available. Once a price for an item is gathered from the survey, it can be used within every weighting structure, as long as the item in question is included in the corresponding weighing structure.

In accordance to the German system, the weights should be derived from final bills of quantities of actual construction works in the different categories of construction projects. The bills need to be collected from construction companies.

The weights should be updated every 5 years in accordance with Eurostat regulations.

For each activity price an elementary index is calculated on company level by dividing the price in the current period with the base price, i.e. the price in the reference period. Each collected price has a corresponding base price.

To compute a significant mean, at least three prices for each item are needed. This means, at least three companies have to deliver price information to the same item. To obtain an mean per activity for each entity of BiH, three prices per item are to be reported for each entity. On

the state level either the elementary indices per item are being used, or all of the single prices can be taken into consideration, if possible. The computation model has to be defined according to the requirements from the state and the entities.

The elementary indices are grouped by activity rather than company. To find indices for each activity a geometric mean of the elementary indices belonging to the activity is calculated. These indices are then used to calculate the total indices using the different weighting structures. Here it is important to notice that the indices for each activity is only calculated once but it will enter into any of the total indices where that particular index has a weight.

To obtain data for the base period, i.e. 2015, prices for two successive quarters should be collected for 2015. Companies should be asked to report prices for two consecutive quarters in 2015 i.e for 4th quarter of 2015 and for 3rd quarter of 2016. Pilot survey data should be used for calculating base prices.

According to the German way of the Index, new construction activities not covered by the current base structure, are observed as soon as prices are available. The prices are observed, checked and collected only with no influence to the current calculated index. The information will be taken into the weight structure initial with the change to a new base. Then, to the until now only observed items a weight will be assigned.

An example of these calculations can be found in annex 4.

Non-response treatment in CPPI survey

Non-response issues in CPPI survey should be covered on the next mission after pilot CPPI survey will be conducted, processed and analysed.

Finalization of questionnaire for Pilot survey on CPPI (by SCM method)

The questionnaire for CPPI pilot survey was drafted during the mission and can be found in annex 5. In line with decision made on last mission one general questionnaire should be sent to all reporting companies.

The work on the weights and items was finalised based on the given modelled bill of quantities to finalize a draft of the questionnaire for the pilot study of the CPPI referring to the SCM method.

Activities from all four main groups should be covered by the questionnaire. As the representative items have been selected in the step before connected to the weighting system, those items need to be in the questionnaire.

The finally developed first draft of the questionnaire will be tested in one or two companies and is supposed to be changed after evaluating the feedback.

In the draft questionnaire 30 items are included with description and measurement units and the amount is pre-printed and space is given to let the reporting units fill in own amounts to simplify the work for the reporting units to fill in the required numbers.

The questionnaire contains self-developed descriptions for each single construction activity (30 of them) draft from the given bill of quantities. Problems to meet with the questionnaire the construction activities carried out by the reporting companies being asked to report to the provided items – there should be some space in the questionnaire either to adjust given descriptions or to add activities not pre-printed standardized in the questionnaire.

The items should be adjustable by the reporting companies. It has pointed out, that many of the required items can be performed by the construction companies in many different variations – space should be given for adjustment the items fitting to the available information.

It is planned to give some handouts or some written support in addition to the questionnaire to the reporting companies.

The goal of all developed materials should be, not to lose information that would be available, but the companies cannot report because lack of space or feel not being allowed to report. In Germany the amount (unit measurement) can be reported in the best way to compute for the company.

Important is, once measurement unit and amount for a price to be reported have been chosen by the company, they should stay with the once taken choice – only change of price should be measured, no changes of volume or amount or reported units should be included in the reported price. If there are changes not only in price, they have to be reported in the questionnaire and then treated by the experts in the Statistical offices.

The questionnaire will ask for prices for the different construction activities included in constructing the typical building and will be pre-printed on questionnaire. Draft questionnaire made during this mission is almost final in the sense that required just small adaption of content, further designing. This should be done by BHAS.

The companies should be asked to report actual price obtained during reference quarter. To help the companies fill in the correct prices the questionnaire contains some prefilled fields:

- Description of the activity, incl. number of unit for which the price should be reported
- Unit measure of the activity, e.g. m², m³, m, etc.
- Instruction will be pre-printed along with questionnaire
- Notes and comments”, why the prices change should be introduced

Companies must be asked to report market prices. The companies should only fill in prices for activities they actually perform or have performed. If the companies usually perform the activity but just have not done them in the reporting period they should report an estimated price, e.i. a model price or put mark „no change”. The companies should also explain, Under „Notes and comments”, why the prices change if that is the case.

The focus should be only on price change for reported items by the companies,

- the reporting structure should be as stable as possible
 - no change of measurement unit (m² to pieces)
 - no change of reported volumes (for example price for 10 pieces or 100 m³)
 - stable list of reported items per company

To obtain data for the base period, i.e. 2015, prices for two successive quarters should be collected for 2015. Companies should be asked to report prices for two consecutive quarters in 2015 i.e for 4th quarter of 2015 and for 3rd quarter of 2016. Pilot survey data should be used for calculating base prices.

Prices for each construction activity should be collected from the construction companies on a quarterly basis. Companies are asked to report the price for the middle month of the quarter, i.e. in February, May, August and November.

To compile CPPI comparable between European Union EUROSTAT recommends the inclusion/exclusion of the following elements for the CPPI described in Section 1 of STS Manual:

- Actual transaction prices should be compiled.
- The prices compiled reflect current market conditions and include a realistic allowance for overheads and profit.
- CPPI should include prices paid by the contractor for all factors contributing to the construction activity paid by the client. These should include the prices of raw materials and wages paid by the construction contractor, plus changes in productivity, profits. Output/producer indices should not include elements not normally paid by the client as the price of land, architects fees, etc.

Finalization of instructions for filling the questionnaires for Pilot survey on CPPI (by SCM method)

Concerning the instructions for the questionnaire the definition of the price index was in focus. Important is the way of formulating the definition to make it clearly understandable, what the statistic asks for and what elements should be in the reported numbers (prices without VAT). As the German instructions on the questionnaire were taken as an example, for cases are explained in the instructions:

- no change of the quality of item – meaning, only price changes or no changes (the most common case)
- change of quality of an item: some parameters influencing the price have changed – therefore the price and some parameters do differ from previous reported numbers, there is space on the German questionnaire to fill in reasons and explanations
- the item will not be performed anymore – the item has to be rediscrbed or to be changed (there are 180 items to choose from in Germany)

Those instructions shall work as an guide for the reporting companies. For the statistic, price changes (inflation) are most important. If, for example, prices do not change, but the volume or the items per unit change – then the prices per unit changes because of change of volume (hidden inflation).

Other important questions concerning the instructions were discussed connected to the design of the questionnaire, for example the period the prices have to reported for (middle month of a quarter), the companies have to report market prices without any changes or parameters like unit measurement or units per item during the different reporting periods.

Furthermore, it should be clearly pointed out, that this statistic is going to be repeated every quarter.

Analysis of population frame and definition of criteria for sample selection

The reporting units should belong to NACE F divisions 41 and 43. Companies outside these groups do not have to be included even though they might perform construction activities.

The reporting units should be chosen from the BIH Business Register using some recognised form of sampling. The population for the survey can be taken from all registered companies in the two chosen divisions 41 and 43. To reduce the burden for both, the statistical agencies and the reporting companies, a cut-off-sample by number of employees could be drawn. The more companies are being in the population, the higher probability is, to get at least three prices for each activity (item) within each region the index will be calculated for.

According to the survey in Germany, the construction companies are being asked directly and they should tell their own price for each construction activity. In case, for some activities one company always asks sub-contractors to perform those activities (for example electro installations), one given questionnaire to the main company should be filled out only by the asked company. The questionnaire should not be filled out by two or more companies in case more subcontractors usually working for projects.

Because the population of the survey will be very comprehensive concerning the included companies, most companies will have a great chance to be included in the population. From the point of view of the statistics, only the construction activities count, not the contractual relationship among companies.

Therefore, if the survey population covers all companies in sector F (NACE 41 and 43), also small companies working as subcontractors will have a chance to be included in the survey.

In Germany, usually not more than 30 items are taken from one single reporting unit. For a questionnaire containing all selected representative items, it has to be accepted, that for many of the items in the questionnaire can be empty if the reporting unit performs only some of the items.

Discussion with construction company expert checking selected activities of a typical dwelling

In order to assess the draft questionnaire for CPPI pilot survey from respondent point of view, construction company expert from “GP KRAINA” Banja Luka is invited to join the mission.

The respondent was asked to give opinion and proposals on clarity of selected 30 representative items, its specifications with given measurement units defined by draft questionnaire for CPPI pilot survey.

It found particularly important for future data collection to obtain information from respondent whether will be able to report the actual prices of new residential building sold according to predefined 30 items of standard component in reporting period.

We are looking for improvement of item description or suggestions on replacement of selected items with those of better representability. Feedback from respondent was positive. Same adjustment is still needed.

Adoption of a general plan for the development of a CPPI with time table for the pilot survey

Firstly, the pilot survey should be carried out according to schedule. The necessary steps are described in details in annex 6, complete with dates and responsible person(s).

During the last two quarters of 2015 a framework for calculation of the indices could be developed if calculations are to start by 2016. This framework will be finalized when it can be tested with actual data, i.e. when data has been collected for the base period and one consecutive period.

In the first quarter of 2016 a plan for publishing the indices should be made. This plan should include what to publish, how to publish and when to publish.

3. Conclusions and recommendations

On the basis of the activities carried out in the mission the following expert recommendations were given:

- The prices per m² for new residential buildings sold should be published as absolute prices per m² and not as an index
- For the improvement of the existing system of prices per m² a common standardized data exchange system among all of the entities and BHAS should be establish
- Multi dwelling building as the most representative in BiH should be use as base for weights and for selection of certain type of works
 - Weights should be fixed over 3 to 5 years
- Single bill of quantities should be used for the standard multi dwelling building
- From the many possible construction activities the amount has to be broken down to a number to handle in a questionnaire. The space for the reporting units will be added on the questionnaire to adjust parameters or to choose other items from a given list of activities,
- Only one general questionnaire for the purpose of pilot data collection should be developed. This questionnaire has to cover all 30 items generally described, selected as most representative.
- General questionnaire will be sent to reporting units accompanied with instructions to report prices (exl. VAT) for the work they actually performed in reporting quarter in line with conclusion from last mission.
- Selection of representative groups and their sub-groups which was done according to value of work should be later use for calculation of weights
- Each of subgroup, one item – dominant activity was selected should be covered by the Pilot survey questionnaire on CPPI (by SCM method)
- CPPI should be calculated using the modified German methodology
- Weights should be calculated
- After Pilot survey on CPPI (by SCM method) the weighting structure should be checked and – if necessary – redefined
- After a Pilot survey on CPPI (by SCM method) or before publishing first results for the CPPI, the chosen representative items should be evaluated and, if necessary, reworked / redefined

- In case of remarkable suggestions from the reporting companies, those should be taken into consideration to improve the sustainability of the calculation system
- A coding system for construction activities (items) should be developed
- Structure of weights – once finalized - should be kept stable as long as they represents the reality taking into account Eurostat legal requirements for rebasing each 5 years (or chain each year) - next change of base year is required for 2020
- Non-response treatment should be discussed in next mission
- Instructions on the questionnaire for Pilot survey on CPPI (by SCM method) should focus on the prices to report and the way we expect the data (information about a price for an item comparable to the last reported item)
- Instructions for Pilot survey questionnaire on CPPI (by SCM method) should be clearly understandable for the reporting companies
- Instructions for Pilot survey questionnaire on CPPI should clearly define the point of view we want the prices viewed from (as construction company and not – for example – from the point as investor)
- The instructions for Pilot survey questionnaire on CPPI should explain, that only prices for construction activities done by the company need to be reported. Therefore, in most cases, not for all of the preprinted 30 items each company will report prices
- The population for the Pilot survey on CPPI (by SCM method) should be taken from the business register sector F and the divisions, construction companies are expected to perform items asked in the questionnaire
- The number of companies included in the population of the Pilot survey on CPPI (by SCM method) should be sufficient to get the minimum number of prices per item (three or more prices per item and region covered)
- Whole list of activity for the Pilot survey on CPPI (by SCM method) should be sent at least to one respondent to check it (pilot of pilot)

It was concluded that the activities given below should be performed before the third mission:

Action	Deadline	Responsible person
Calculation of weighting structure	June 2015 (3 rd mission)	BHAS, FIS and RSIS
Select reporting units from the business register	June 2015 (3 rd mission) – preliminary End of November 2015 – final selection for Pilot survey	BHAS, FIS and RSIS
Visits with at least two reporting units to test the questionnaire	Before the end of September 2015	BHAS, FIS and RSIS
Preparation the questionnaires, instructions and circular letter to reporting units	15 th November 2015	BHAS, FIS and RSIS
Send questionnaires to reporting units for 3 rd and 4 th quarter 2015	Last week of December 2015	BHAS, FIS and RSIS
Contact non-responding reporting units to obtain non-response data	15 th February 2016	BHAS, FIS and RSIS
Data editing and analysis of Pilot survey results (List of controls for micro data checking, non-response treatment, calculation of indices, etc.)	2 nd and 3 rd week of February 2016	BHAS, FIS and RSIS
Develop IT-application for data collection	March 2016	BHAS, FIS and RSIS
Begin regular survey (send out questionnaires in the last week of March 2016)	March 2016	BHAS, FIS and RSIS

Topics for the next mission

- Overview of experience with first pilot CPPI data collection
- Analysing results of the CPPI pilot survey
- Reviewing treatment of non-response
- Reviewing framework for data collection and calculation of the index, incl. IT
 - Invite the relevant IT-staff to join the mission

Annex 1 ToR

EU Twinning Project BA-12-IB-ST-01**Terms of Reference****Component: 2.3.1 Short-Term Statistics****8th – 12th June 2015****Banja Luka, Veljka Mladenovića 12d, RSIS****Activity**

2.3.1.3 Testing of pilot survey results of the producer (output) prices in construction

Benchmarks

- Plan for development of PPIC done by 2nd project quarter
- Draft questionnaires and supporting documentation prepared by 2nd project quarter
- Pilot surveys for PPIC conducted 3rd project quarter
- First results analyzed and questionnaires redesigned by 6th project quarter
- Methodological document developed by 8th project quarter

Purpose of activityThe expected activities are:

- Presentation of activities carried out between two missions
- Presentation of the first results on Pilot survey on average selling prices of new residential buildings per m²
- Overview of bill of quantities and specifications prepared by IPSA Institute for two selected/typical constructions)
- Calculation of weighting structure that will be used for calculation of CPPI (typical construction/dwelling) based on bill of quantities and specifications
- Non-response treatment in CPPI survey
- Finalization of questionnaire and instructions for filling the questionnaire for Pilot survey on CPPI (by SCM method)
- Analysis of population frame based on data from SBR; definition of criteria for sample selection of reporting units
- Adoption of General Plan for development of CPPI with timetable for Pilot survey

Expected output

- First results of Pilot survey on average selling prices of new residential buildings per m² analysed
- Weighting structure calculated
- Non-response treatment defined

- Final version of questionnaire and instructions developed
- Population frame analysed; Criteria for sample selection defined
- General Plan for development of CPPI with timetable for Pilot survey developed

List of Participants

Experts

Christoph Schäfer, DESTATIS

Jasna Pugar, Croatian Bureau of Statistics

Agency for Statistics of BiH

Fahir Kanlić, Head of Department for Industry and Construction Statistics

Radomir Mutabdžija, Senior officer in Department for Industry and Construction Statistics

Institute for Statistics of Federation of BiH (FIS)

Nusreta Imamović-Kaljanac, Head of Department for Industry, Construction and Energy Statistics

Edina Dulić, Senior adviser for Construction Statistics

Institute for Statistics of Republika Srpska (RSIS)

Želimir Radišić, Senior officer for Construction Statistics

Twinning Project Administration

Søren Leth-Sørensen, RTA

Djemka Sahinpašić, RTA Assistant

Agenda				
Time	Day	Place	Event	Purpose / Detail of event
09:00-12:00	Monday Morning		MS experts meeting	Discussion and preparation for the mission MS experts
13:00-16:00	Monday, afternoon		Workshop with BC Experts	Welcome and Introduction Presentation of activities carried out between two missions Presentation of the first results on Pilot survey on average selling prices of new residential buildings per m ² BC participants and MS experts
9:00-16:00	Tuesday, morning		Workshop with BC Experts	Overview of bill of quantities and specifications prepared by IPSA Institute for two selected/typical constructions); Discussion MS experts, BC participants
	Tuesday, afternoon		Workshop with BC Experts	Calculation of weighting structure for CPPI Non-response treatment in CPPI survey BC participants and IPA experts
9:00-16:00	Wednesday		Workshop with BC Experts	Finalization of questionnaire for Pilot survey on CPPI (by SCM method) MS experts, BC participants
9:00-16:00	Thursday, morning		Workshop with BC Experts	Finalization of instructions for filling the questionnaire for Pilot survey on CPPI (by SCM method) BC participants and MS experts
	Thursday, afternoon		Workshop with BC Experts	Analysis of population frame and definition of criteria for sample selection Preparation for the next mission (list of activities to be done before the next mission) BC participants and IPA experts
9:30-12:00	Friday, morning		Meeting with BC Experts	Presentation of results; Agreement on Mission report. BC participants and IPA experts

Annex 2. Persons met

Experts

Christoph Schäfer, DESTATIS
Jasna Pugar, CROATIAN BUREAU OF STATISTICS

BHAS:

Fahir Kanlić, Head of Department for Industry and Construction Statistics
Radomir Mutabdzija, Senior officer in Department for Industry and Construction Statistics

FIS:

Nusreta Imamović-Kaljanac, Head of Department for Industry, Construction and Energy Statistics
Edina Dulić, Senior adviser for Construction Statistics

RSIS:

Želimir Radišić, Senior officer for Construction Statistics

External stakeholders:

Slobodanka Čurković, GP KRAINA

RTA Team:

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