

TWINNING CONTRACT

BA 12 IB ST 01

Support to the State and Entity Statistical Institutions, phase VI



MISSION REPORT

on

Activity 2.1.4 Enterprise Groups I

Mission carried out by
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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

1. General comments

The experts from Denmark and Finland met with Business register experts and IT experts from FiS, BHAS, the district of Brcko and RSIS, the latter participated via a video link from Banja Luka. Throughout the mission the participation was very active and there were many discussions revealing both a high level of engagement but also a thorough knowledge of the relevant regulations and the BR recommendations manual.

The mission took departure in a short presentation of the BR system in Bosnia-Herzegovina. This also included a brief introduction to the role of the entities in the statistical system of BiH. Both the two entities and the Brcko district have their own but identical SBR. Every quarter, the contents of the SBR is submitted to BHAS, where it is merged into a joint BiH SBR. The information is exchanged at micro level, but information on turnover and employment is categorized into classes.

Following that there was a presentation of how enterprise groups are treated in the Danish BR. In this presentation there were also some more general and introductory thoughts on the concept of “the enterprise group” and on how and why this should be included as a unit in business statistics. The presentation also focussed on how enterprises are created in the Danish BR, and on the user interface of the enterprise groups.

The presentation from Finland gave a more detailed insight into how the enterprise group could be constructed and included in the SBR. It also focussed on which tables and variables are included in the Finnish model.

One of the focus points of the discussions was what sort data is needed for the creation of enterprises and on what the quality of the available data is. Denmark uses data from commercial data providers, and Finland uses manually updated input data. In BiH several data sources seem to be available some of them quite promising.

Experts from FiS demonstrated the input data that they have available from the tax authorities and also gave a more general introduction to the BR user interface.

Another issue which was discussed extensively throughout the mission is how to create enterprise groups, i.e. what kind of algorithm or program to use. To illustrate how to go about solving that issue, the experts went through the Danish model step by step. It was emphasised that both indirect and direct control relations are necessary in order to create a complete image of enterprise groups.

On agreement with the experts from BiH, the experts from Finland and Denmark drafted a road map or rather 5 steps, which have to be taken out in order to introduce enterprise groups in the BR in BiH. This document, which is included here as an annex, formed the basis for a thorough discussion of the various elements involved in introducing enterprise groups in the SBR.

The experts stressed that a stepwise approach should be adopted rather than trying to build the whole thing at once. It is important to build the system in a way so that it is easy to modify and extend later on. In designing the system it is also important to keep the EU regulations in mind, even though BiH is not currently required to meet them, it is an aim that it will be able to do that in the future

2. Assessment and results

The overall assessment is that there is a very good foundation for the successful introduction of enterprise groups in the SBR in BiH. The staff is highly motivated and is very familiar with the relevant EU regulations and the BR recommendations manual.

There are also some potentially very good data sources to be used for the creation of enterprise groups. To all appearances BiH may be able to create enterprise groups in the BR primarily through the use of administrative data. There are still some questions to be resolved regarding the contents and the quality of data, including its coverage.

Enterprise groups have to be created by taking departure in a complete data set encompassing all legal units in BiH (plus foreign direct owners, and subsidiaries). So the issue of how to combine data from the entities has to be solved. And a decision has to be taken on where to locate the responsibility of the enterprise group creation.

The road map listed five steps that have to be taken to implement enterprise groups in the SBR in BiH. These are:

1. Get access to a complete set of data containing relations between legal units in BiH
2. Formulate an algorithm to create enterprise groups on the basis of this data set.
3. To include enterprise group as an entity in the data model for the SBR
4. To develop the user interface so as to include enterprise group
5. To develop and describe the process for the continuous updating of the enterprise group

For the successful implementation of enterprise groups in the BR, there needs to be a good cooperation and communication between BR experts and IT experts. There are many steps in the procedure that will have to be supported by IT solutions. The fact that IT staff was present throughout the entire mission, and were also engaged in the discussions, is a good sign and bodes well for future cooperation.

3. Conclusions and recommendations

It can be concluded that SBR in Bosnia and Herzegovina has the elements to introduce enterprise groups in SBR. The next step forward is to concentrate on the five steps in the roadmap described above. The tasks for the experts from Bosnia and Herzegovina before next mission are listed below.

- Assess the input data, and discuss any quality issues related to this
 - It is recommended that data sources are reviewed and that agreements are made with data providers in order to ensure access.
 - Ensure that indirect as well as direct relations are covered by the data.

- That it is decided where and how to store data
 - That the collection, merging and storing of data is automatized as much as possible, i.e. by writing a program that will carry out these processes.
- And focus on the creation of enterprise groups
 - Discuss and preliminarily decide on the rules for the creation of enterprise groups
 - Develop an initial version of an algorithm for the creation of enterprise groups
 - Testing this initial version on data from the input data set, or alternatively, on a test data set.
- Work on the other three points mentioned in the road map should be prioritised once the data and algorithm is in place.
 - This does not mean that these steps should be ignored completely until step 1 and 2 are done. On the contrary, it is probably good to go through the entire process at a very high (model) level and to describe in general terms what is required.
 - Instead it means that in terms of development resources these should primarily be spent on step 1 and 2 before being devoted to 4 and 5 in particular.

Annex 1. Road map

The goal

The goal is to introduce enterprise groups in the SBR of Bosnia-Herzegovina. The SBR should contain domestic enterprise groups (DEG), domestically owned global enterprise groups (GEG), and foreign owned global enterprise groups (GEG) operating in BiH. For the domestically owned GEGs the SBR should contain all subsidiaries abroad, whereas for the foreign owned GEGs it is only necessary to include legal units operating in BiH and the foreign unit that is controlling domestic units. It is suggested that the BR as an initial goal should only include the immediate controlling unit.

Current situation

The situation today is that an SBR is established; each of the two entities, and also the Brcko district, has their own but similar SBR. Every quarter, the contents of the SBR is submitted to BHAS, where it is merged into a joint BiH SBR. The information is exchanged at micro level, but statistical information is categorized into classes. The SBRs do not contain enterprise groups today.

How to achieve the goal

To achieve the goal, it is necessary to:

6. Get access to a complete set of data containing relations between legal units in BiH
7. Formulate an algorithm to create enterprise groups on the basis of this data set.
8. To include enterprise group as an entity in the data model for the SBR
9. To develop the user interface so as to include enterprise groups
10. To develop and describe the process for the continuous updating of the enterprise group

These steps follow each other logically, but it is not the case that step 1 has to be fully completed before work on step 2 can be initiated.

1. A complete data set

About the data set

The data set for the creation of enterprise groups should contain the following variables:

Variable

- ID number of legal unit
- ID number of related legal unit
- Ownership pct.
- Control
- Direction of relation
- Start date of relation
- End date of relation

Each row in the data set represents a relation between two legal units.

This means in practice that a particular legal unit will appear in the data set as many times as it is part of a relation. So if a legal unit is a parent of three legal it will appear in three rows.

In most cases information on control is not readily available, so ownership percentage can instead be used as a proxy.

It is not necessary to include the direction of the relation in the data set if the relation always is in the same direction and if there is no exception to that.

Available data sources

The statistical offices in the entities already get **data from the tax authorities** which contain the relevant information and could be used as a very good starting point for creating an input data set to form enterprise groups.

The data from the tax authorities encompass all resident legal units in the entities and their main owner.

The following issues should be addressed when using the data set:

- As of now the data only contains one relation pr. Legal unit (the owner which has the majority or the largest ownership pct.)
- The data should be merged so that one consolidated data set for BiH is created
- There is not a start and end date of the relation in the data

The first of these issues can be resolved by contacting the tax authorities and reach an agreement on receiving a complete set of relations.

The second should maybe be decided at managerial level. It might also be possible to come up with a technical solution that draws on the two sources without actually merging them into one file.

The third issue could maybe be resolved by using the information in the various versions of the file transferred from the tax office.

However, we recommend that the further work on the creation of enterprise groups continues even if these issues are not initially resolved.

Another potential source which has to be explored is the **FDI data from the CBBH**. The statistical institute doesn't yet have access to this data, so the following needs to be addressed.

- Is the CBBH willing to hand over this information to the statistical institutes? Yes
- Is it willing to do it regularly, so that it can enter into production? Yes
- And does the data set contain the variables (or some of them) which are needed?

A third source is **OFATS** There is currently not access to OFATS as this is carried out by the ministry of trade.

A fourth source is the **Registry of Securities**, for joint stock companies. It is not possible to establish ownership for joint stock companies without this source.

An initial analysis has to be carried out to

- get an overview over all these sources
- consider whether all sources are necessary or it is sufficient to use one or two

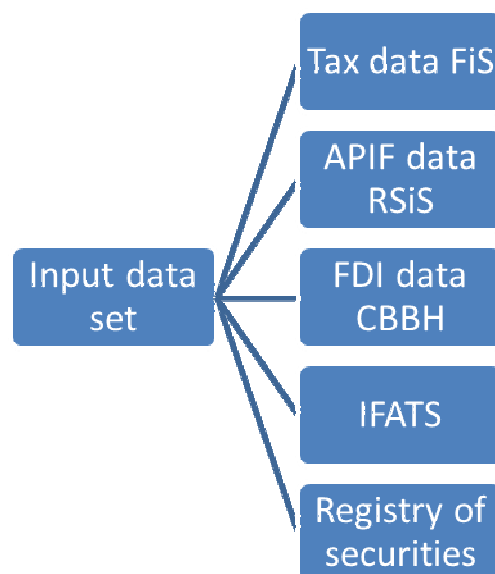
- consider how the sources can be merged into one data set
- Consider the reliability of access, i.e. are the owners willing to submit data regularly

Other important issues regarding the data is to

- Agree on where to store the data and who will have the responsibility for the data and the creation of enterprise groups.
- Decide on the data structure. For automated procedures it is important that the same format is kept
- Make agreements (contracts) with the owners of the data about deliveries; i.e. both format and frequency.
- Take into account that when using many different sources there is a risk that the timeframe of the sources do not match. I.e. if tax data is from 2015 and FDI data from 2014 it might be difficult to create enterprise groups – or not correct picture. ID must be consistent across different sources.

Once an overview of data has been achieved and the organizational issues have been agreed on it is necessary

- To write a program that collect, merges and stores data
- This program should include some basic quality checks of data



2. Algorithm for creation of enterprise groups

The creation of enterprises cannot be carried out manually. This is partly because there is too much information and too many rows to deal with, and partly because it is actually possible to devise an algorithm that can do the job very well.

The starting point the creation of enterprise groups is the input data set as described above. All issues do not need to have been resolved for the work on the algorithm to proceed.

We recommend that the algorithm includes indirect control as well as direct control as an omission of the former will draw an incomplete picture of (the more complex) enterprise groups. However, if for some reason it should take a long time to get access to the complete data set from the tax authorities, the work on developing the algorithm should continue anyway.

There are many ways the algorithm can be designed, but it should include the following steps

- a. Find the potential group heads in the input data file.
- b. Find the indirect relations once the initial groups are created.

Step b can be iterated a number of times until all units are correctly assigned to the enterprise group they belong to.

The development of the software should take place in close cooperation between BR staff and IT staff, so as to ensure that the desired result is achieved.

The BR staff should formulate what they want the program to do, and they should test it gradually as it is developed.

A recommended approach is to develop it step by step and also to use small subsets of the input data or constructed data to test it on.

The output of this step should be data that can be imported into tables in the SBR.

3 Enterprise group in the data model for the SBR

The enterprise group should be included in the SBR and therefore the data model needs updating.

It is necessary to describe how the enterprise group will be part of the model and also to describe in more details which tables are to be updated created, and the structure, format and contents of the input data.

The input into the SBR is the output of the previous step – the data that is created by running the algorithm for the creation of enterprises. So these issues should be addressed when working on the algorithm.

The data should be imported to the SBR, - if the algorithm is run by a program external to the SBR.

If the algorithm is run by a procedure internal to the SBR, this procedure should automatically update the relevant tables.

One issue that has to be resolved is how this should be included in the SBRs of FiS and RSiS. The creation of enterprises has to be carried out for the entire BiH, so the EG part of the SBR cannot be created from each of the SBRs and then submitted to BHAS.

This work should also be carried out in close cooperation between SBR staff and IT experts.

4 Develop the user interface to include enterprise groups

A user interface for accessing information about enterprise groups should be developed.

It is recommended that it be possible to access information about the enterprise group and its constituent parts through the interface. It is also recommended that it will be possible to export the group and its structure to a file, e.g. excel, from the interface. But the precise specification of the user interface will have to be carried out together with the users of the SBR.

5 Process for the continuous updating of the enterprise group

The enterprise groups, like all other elements in the SBR, have to be updated continuously. That could be annually, quarterly or whenever new information is available.

One can distinguish between two types of updating.

- Automatic updating on the basis of the data described above.
- Manual updating of specific enterprise groups.

The automatic updating happens either when a new data file is available from the sources or one can choose a specific frequency for updating.

A program or set of programs should be developed which can take care of all the processes, these are:

- Importing and merging data
 - This should include quality checks of input data
- Creating enterprise groups
- Updating relevant tables in the SBR

Manual updating happens when information about individual enterprise groups has to be entered into the SBR. This could happen if errors are detected or information about mergers or sell-offs is obtained.

The actual updating could be carried out via the user interface, but access to editing rights should be restricted.

It is important though to formulate rules for when and how manual updating should take place.

Annex 2. Terms of Reference

EU Twinning Project BA-12-IB-ST-01

Terms of Reference

Component: 2.1. Statistical Business Register

14 – 18.3.2015.

Agency for Statistics of BiH, Zelenih beretki 26, Sarajevo

Activity 2.1.4

Enterprise Groups I

Benchmarks

- 5-year development plan updated by 1st project quarter and by 8th project quarter
- Methodology for linking SBR with the compilation of SBS business demography characteristics available by 4th project quarter
- **Methodology for enterprise groups in SBR available by 8th project quarter**
- Institutional sectors code assigned to the SBR units by 8th project quarter
- SBR is ready to be used for analysis of business demography by 8th project quarter

Purpose of activity

The expected activities are:

- Introductory speech on Enterprise Groups preparing by experts
- Presentation on Enterprise Groups: rules for construction, observation and updating of EG characteristics in SBR
 - Presentation of Danish model
 - Presentation of Finish model
- Discussion of the present status on Enterprise Groups in Bosnia and Herzegovina
- Discussion on development of methodology for Enterprise Groups
- Practical examples of EG construction or same specific cases of EG presented by experts
- Assessment of technical preconditions on introductions of EG in SBR
- Next mission
 - Preparation of the list of activities to be done before the next mission

Expected output

- General overview on Danish and Finish model and procedures for Enterprise Groups

- General overview on the present status on Enterprise Groups in Bosnia and Herzegovina
- All methodological and practical questions which are requested by participants, discussed and explained by MS Experts
- Input to draft methodology made
- Technical preconditions on introductions of Enterprise Groups in SBR assessed
- The list of activities to be done before the next mission on Enterprise Groups, prepared and agreed by all partners (BHAS-BD/ FIS/RSIS participants, experts and RTA)
- Draft ToR for the next mission prepared and agreed by all partners (BHAS-BD/ FIS/RSIS participants, experts and RTA)

List of Participants

MS Experts

Søren Kristensen	Statistics Denmark
Tommi Kaatrasalo	Statistics Finland

Agency for Statistics of BiH**Statistical Business Register:**

Dzenita Mustafić	Specialist for SBR (Coordinator for SBR Component, BHAS)
Mevlija Odobasić	Senior Advisor for SBR
Ivana Tavra Čolo	Senior Official for SBR
Branislava Cvijetić	Senior Advisor for IT
Senija Fačić	Head of Branch Office in Brčko District
Vedad Osmanović	Senior Advisor for IT in Brčko District

Institute for Statistics of Federation of BiH (FIS)**Statistical Business Register:**

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Institute for Statistics of Republika Srpska (RSIS)**Statistical Business Register:**

Nataša Teinović	Senior Official for SBR
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Twinning Project Administration

Søren Leth-Sørensen	RTA
Djemka Šahinpašić	RTA Assistant
Haris Imamović	Interpreter

Agenda

Location: Agency for Statistics of BiH, Zelenih beretki 26, Sarajevo
Conference room of the Agency for Statistics of BiH, at the first floor.

Time	Day	Place	Event	Purpose / Detail of event
09:00-11:00	Monday, morning		MS experts briefing with the RTA	To discuss the mission, introduce the experts to each other, discuss previous experience
12:00-15:30	Monday, afternoon		Experts	Introductory speech and adopting of Agenda Presentation of EG model in Denmark and Finland Discussion
8:30-15:30	Tuesday, morning		Open Discussion	Discussion of the present status on EG in BiH
	Tuesday, afternoon		Workshop	Development of methodology for EG
8:30-15:30	Wednesday,		Workshop	Development of methodology for EG
8:30-15:30	Thursday		Open Discussion	Discussion of technical preconditions on introductions of EG in SBR
8:30-13:00	Friday, morning		SBR and IT Staff with MS Experts	Presentation of results, agreement on mission report, homework for the next mission, implications for the next activities