

Steering Committee of the International Monitoring Operation on the Population and Hous- ing Censuses in Bosnia and Herzegovina

Final Assessment Report

October 2016

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LIST OF ACRONYMS

BiH	Bosnia and Herzegovina
BHAS	Agency for Statistics of Bosnia and Herzegovina
CoM	Council of Ministers of BiH
CMIS	Central Monitoring Information System
CSO	Civil Society Organisation
DB	District Brčko
EA	Enumeration area
FBiH	Federation of Bosnia and Herzegovina
FOS	Federal Office of Statistics (FBiH)
EI	Entity Instructor
EN	Enumerator
EUPHC 2	Technical assistance to Population and Housing Census Phase II
GIS	Geographic Information System
IMO	International Monitoring Operation
IMO MG	International Monitoring Operation, Management Group
IMO SC	International Monitoring Operation, Steering Committee
IT	Information Technology
LFS	Labour force survey
MCC	Municipal Census Commission (Census Commission of the units of local self-government)
MI	Municipal Instructor
PES	Post Enumeration Survey
Q	Question
RS	Republika Srpska
RSIS	Republic Srpska Institute for Statistics
SA	Statistical Area
SI	State Instructor
TA	Technical Assistance
TAP	Technical Assistance Project
TOR	Terms of Reference

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EXECUTIVE SUMMARY

1. A Population and Housing Census took place in Bosnia and Herzegovina (BiH) in accordance with the Law on the Census of the Population, Households and Dwellings adopted on 3 February 2012. The Council of Ministers of Bosnia and Herzegovina had invited the European Commission to organise the international monitoring of the Census to assess the compliance of the whole Census exercise, from the preparation to the data dissemination, with International and EU standards on population and housing censuses, including standards on data protection and confidentiality.
2. The Operation was carried out by a Committee of International Organisations, the Management Group (IMO MG) assisted by a Steering Committee of experts, led by a Senior Census Expert, and comprising experts in population censuses, and information technology. The SC conducted 24 missions in Bosnia and Herzegovina, from April 2012 to September 2016. The Council of Europe organised the logistics of the SC missions as well as the observation mission during the census enumeration.
3. The legal basis for the census was the census law, adopted on 3rd February 2012. The law is quite comprehensive and covers extensively all the aspects of a population and housing census. In that regard, the law should provide a sound ground for the preparation and the implementation of the census. However, the SC highlighted some points that may not be completely clarified or stated by the law, in particular the determination of the resident population.
4. The budget of the census represented around 5.3 Euros per capita, which is in line with European countries. The analysis of the cost structure by activity shows that the cost of the pilot census, of the evaluation (PES) and communication were under the average of European countries. The financial support of the EU, almost 13 million euros, was highly significant in the total budget of the census.
5. Issues of coordination and cooperation have continuously been at the heart of the difficulties faced by the census preparations and implementation. The decision-making process proved to be largely ineffective and decisions were most of the time only partial and provisory. This, for instance, led to serious delays in the data processing phase due to the absence of agreement among the three SIs on the rules to adopt to determine the residence status.
6. The methodology used for the 2013 census, traditional canvassing of the country, proved its efficiency, especially in the context of a country that did not conduct a census since 22 years.
7. The preparation of the questionnaires was long in particular to agree among the three statistical institutions on the formulation of the sensitive questions on ethnicity/nationality, religion and mother tongue. Finally, the recommendation of the SC, based on international recommendations, to formulate these questions as open questions was partly followed, as semi-open questions.
8. A pilot census was conducted one year before the census enumeration, and provided useful lessons for the finalisation of the census preparations.
9. The census, initially planned to be conducted in April 2013, was postponed to October 2013, following the recommendation provided by the IMO in December 2012, after assessing the progress made in the preparations of the census.
10. To monitor the enumeration, the SC was assisted by a team of 27 international observers, deployed over the country with the task of monitoring the work of all actors involved

and to assess whether the census data collection was conducted in compliance with the Census methodology and international standards. From this observation, the SC considered that despite some external pressure, the census enumeration was carried out smoothly and in accordance with the international standards. During the enumeration cases of wrong enumeration of non-residents as usual residents (especially people living abroad) were observed that could cause possible over-counting of persons.

11. A number of institutional and political challenges hampered the communication activities related to the census. Before the field operations and in the following year there was very little understanding in the management of the BHAS of the importance of proactive and fast communication with the media. Too few resources were allocated and the Director offered too little personal participation in the media. The census law provided that the BHAS was responsible for the external communication. This prevented the entity SIs from taking the real lead in public communication and as a communication group for all three offices was established late and only met few times, it hampered significantly the active participation in media relations and communication actions.

12. Strong disagreement among the three statistical institutions about the procedure to use for the determination of the resident status of the enumerated individuals led to considerable delays in the processing of census results. Finally, in May 2016, the Director of the BHAS took the decision to implement the recommendations made by the SC more than one year before.

13. Overall, the SC considers that data processing activities of the 2013 population and housing census of BiH have been satisfactory in comparison with international standards and best practices. With the exception of some marginal aspects, the method of data capture and the methodology used for data editing were quite modern and in line with international standards.

14. Evaluation of the coverage of the census is an important requirement of the quality report as required by the EU regulation about population and housing censuses. It is noticeable that Bosnia and Herzegovina could conduct such assessment of the 2013 census by conducting successfully a PES. The methodology used as well as the implementation were satisfactory. According to the results of the Post Enumeration Survey, the net over-coverage at national level amounts to 4.61 per cent.

15. The SC assessed the quality of the census results by reviewing the published tables and requesting additional ones, as well as comparing census results with external data and neighbouring countries. The census results are in general internally consistent. Comparisons with the few external sources available show consistence of the relative distributions; and differences of absolute figures in the magnitude of the coverage rate provided by the PES. International comparisons with neighbouring countries confirm the plausibility of the census results.

16. Preliminary census results were published in accordance with the Census Law within 90 days after the enumeration, but the dissemination of final results occurred only on June 30th, 2016. Nevertheless, the Statistical Institute of Republika Srpska did not accept the results as produced from the implementation of the rule for determination of resident population that they rejected. Dissemination of census results was finally planned in three modes: (1) dissemination of the tables through printed publications and in electronic versions placed on the web as PDF and Excel format, (2) online interactive dissemination database allowing users to generate their own tables at the level of municipality and settlements, (3) geo-portal for

map dissemination of data for all geographical units with minimum level of settlements. In addition a census atlas will be published and a publication on the results of the PES.

17. In the specific context of BiH, and the inclusion of sensitive information such as ethnicity, religion and mother tongue, it is of utmost importance that any possibility of disclosure be avoided. The SC made strict recommendations to ensure confidentiality of the collected information. However, considering that the SC was not able to assess the decisions not taken at the time of its last mission regarding archiving and destroying of census material and consequently their implementation, the SC expresses strong reservations about the way personal information will be handled after the census operation.

18. In conclusion, the IMO-SC concludes that the census in Bosnia and Herzegovina was as a whole conducted in compliance with international standards. Although the pressure and resulting discussions on the questions and enumeration data on ethnicity, religion and mother tongue had an impact on the management of the operations, the census results are in general considered valid and useful for economic and social policy planning, which is a key objective of censuses around the world.

19. Regarding the overall processes, the IMO-SC recommends - in view of future censuses in Bosnia and Herzegovina – to grant more attention to some aspects. In particular, a better design and implementation of communication activities around the census operation and stronger institutional cooperation would contribute to a more efficient management of the census process. Given their optional character and their impact on the census processes, Bosnia and Herzegovina should consider not including sensitive questions bearing high political impact such as ethnicity, religion and mother tongue, in future censuses.

20. The SC expects the statistical institutes to implement the recommendations from the IMO regarding the protection and confidentiality of personal information in line with international standards.

INTRODUCTION AND BACKGROUND

22. A Population and Housing Census took place in Bosnia and Herzegovina (BiH) in accordance with the Law on the Census of the Population, Households and Dwellings in Bosnia and Herzegovina in 2013 as adopted by the Parliamentary Assembly of Bosnia and Herzegovina on 3 February 2012. The Council of Ministers of Bosnia and Herzegovina has invited the European Commission to organise the international monitoring of the Census. Therefore, the European Commission, the Council of Europe and the Council of Ministers of Bosnia and Herzegovina signed on 18 April 2012 a Memorandum of Understanding to agree upon the following:

- The general objective of the International Monitoring Operation (IMO) of the Population and Housing Census in Bosnia and Herzegovina is to monitor the compliance of the whole Census exercise, from the preparation to the data dissemination, with:
- International standards on population and housing censuses as defined by UNECE and Eurostat, and as adopted by the Conference of European Statisticians as Recommendations for the 2010 Censuses of Population and Housing;
- Regulation (EC) No 763/2008 on population and housing censuses, and its implementing measures;
- The Fundamental Principles of Official Statistics, adopted by the UN Statistical Commission, as well as the European Statistics Code of Practice, promulgated by the European Commission;
- Standards on data protection and confidentiality, as provided for in the Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data of the Council of Europe, and the relevant European Union regulations in force.

23. The Operation will be carried out by a Committee of International Organisations, the Management Group (IMO MG) assisted by a Senior Census Expert, experts in population censuses, one or more experts in information technology and persons monitoring the census enumeration in the field.

24. The Senior Census Expert, the Census Experts and the IT Experts will assess the compliance of the Census in Bosnia and Herzegovina with the requirements listed in the Memorandum of Understanding, but they will not provide technical assistance.

25. Under the guidance of the Committee and the Senior Census Expert, the Census Experts shall:

- Examine the technical preparation of the Census including the pilot Census and post-enumeration survey, in particular the drafting of questionnaires and manuals;
- Monitor the collection, processing and dissemination of Census data, verifying the accordance with the requirements defined above;
- Control the fair and proper computation at all levels and whether the confidential nature of the individual data is fully guaranteed;
- Investigate any other matter with relevance for the Census.

26. The Management Group has designated Mr. Jean-Michel Durr as Senior Census Expert and Mr. Roberto Bianchini, Mr. Bent Noerby Bonde, Ms. Meryem Demirci, Ms. Katerina Kostadinova-Daskalovska, and Mr. Guido Pieraccini as experts in population censuses.

The Senior Census Expert and the Experts in population censuses form the IMO Steering Committee (IMO SC) of international experts.

27. The first mission of the IMO SC was conducted from 23 to 26 April 2012. The objective of this mission was to assess the preparations for the population and housing census in their main components, including the preparation of the pilot census. The report of the SC was sent by the Senior Census Manager on May 12 to the IMO MG.

28. The second mission was conducted from 26 to 29 of June 2012. The objective of this mission was to assess the progress made since the first mission in preparations for the population and housing census, including the preparation of the pilot census.

29. The third mission took place on 17 and 18 of September 2012 and was conducted by two members of the SC, namely, Mr. Jean-Michel Durr and Ms. Katerina Kostadinova-Daskalovska. The objective of the mission was to assess the implementation of recommendations made in previous reports and to assess the preparation of the pilot census, planned for October 15-29.

30. The fourth mission took place between 10 and 29 of October 2012 and was conducted successively by the members of the SC (5 days each, except the senior expert from 10 to 19 of October). The objective of the mission was to observe the conduct of the pilot census in the field. In addition, a team of four observers, composed of Lidija Naumovska, Gabor Rosza, Jean-Paul Sardon and Per Schöning was present during the whole period of the pilot census. Each of them covered several municipalities, in order to observe the pilot census field operations in all the 60 enumeration areas (EAs) sampled in the pilot.

31. The fifth mission took place from 19 to 21 of November 2012 (3 days) and was conducted by one member of the SC, Ms. Katerina Kostadinova-Daskalovska. The objective of the mission was to observe the conduct of the Post enumeration survey (PES) of the Pilot census in the field. The expert covered all 6 EAs (in 6 municipalities) sampled in PES sample in order to observe the PES field operations.

32. The sixth mission took place from 10 to 13 of December 2012 and was conducted by four members of the SC: Mr. Roberto Bianchini, Mr. Bent Noerby Bonde, Ms. Katerina Kostadinova-Daskalovska and Mr. Guido Pieraccini. The objective of the mission was to hear from the Statistical Institutions about the lessons learned from the Pilot Census and to assess whether the preparations are on level that could allow conducting a census in April 2013.

33. The seventh mission took place from 12 to 15 February 2013 and was conducted by one member of the SC, Mr. Roberto Bianchini. The objective of the mission was to assess the situation on the progress of preparation and implementation of the IMO recommendations in the new context of the postponement of the census, with a focus on the achievement of the deadlines regarding cartographic preparations. A second objective was to collect information and materials for a more detailed assessment on the progress of census preparatory activities to be made by all members of the SC in March 2013.

34. The eighth mission was conducted by the complete SC from 18 to 22 March 2013. The objective of the mission was to assess in detail progress made in the preparations with regard to the milestones given after the sixth mission in December 2012, when the SC recommended to postpone the census to October 2013.

35. The ninth mission was conducted by two members of the SC, Jean-Michel Durr and Katerina Kostadinova-Daskalovska from 22 to 25 April 2013. The objective of the mission

was to assess the progress made in the preparations with regard to the milestones given in the sixth mission and updated in previous missions.

36. The tenth mission was conducted by the full SC from 28 to 31 May 2013. The objective of the mission was to assess whether the progress made in the preparations was sufficient to consider that the country was ready to conduct a census in October 2013.

37. The eleventh mission was conducted by three members of the SC, Mr. Jean-Michel Durr, Mr. Bent Noerby Bonde and Mr. Guido Pieraccini from 16 to 19 July 2013. The objective of the mission was to assess whether the preparations were still on track after the positive assessment of the 10th mission to conduct a census in October 2013. A special focus was put on the preparation of data processing.

38. The twelfth mission was conducted by four members of the SC, Mr. Roberto Bianchini, Mr. Bent Noerby Bonde, Ms. Katerina Kostadinova-Daskalovska and Mr. Guido Pieraccini from 3 to 6 September 2013. The objective of the mission was to assess the state of play regarding to forthcoming census field activities (including PES) and data processing activities following the field activities as well as the overall census preparations in accordance to the Census milestones and SC recommendations and advices given through the previous missions and SC reports.

39. The thirteenth mission was conducted by five members of the SC: Mr. Roberto Bianchini and Mr. Guido Pieraccini from 27 September to 4 October, Ms. Katerina Kostadinova-Daskalovska from 4 October to 11 October; and Mr. Jean-Michel Durr and Ms. Merzem Demirci from 11 October to 18 October. The objective of the mission was to monitor the enumeration of the census, including its final preparations and final operations. During this mission, the SC was assisted by a team of 27 international observers, deployed all over the country.

40. The fourteenth mission was conducted by one member of the SC: Ms. Katerina Kostadinova-Daskalovska from 1 to 3 November 2013. The objective of the mission was to monitor the conducting of the Post-enumeration survey following the Census. During this mission, the SC was assisted by a team of 5 international observers, deployed all over the country from 1 to 10 November.

41. The fifteenth mission was conducted by one member of the SC: Mr. Guido Pieraccini from 17 to 18 December 2013. The objective of the mission was to assess that the data processing system was functional and in accordance with the SC recommendations.

42. The sixteenth mission was conducted by five members of the SC from 11 to 14 February 2014. The objective of the mission was to assess the starting of the data processing and the implementation of the SC recommendations.

43. The seventeenth mission was conducted by one member of the SC: Mr. Guido Pieraccini from 21 to 23 May 2014. The objective of the mission was to control that the data processing was working smoothly and that the timing for completion of the phase was in accordance with the SC recommendations.

44. The eighteenth mission was conducted by four members of the SC from 3 to 6 June 2014. The objective of the mission was to assess the situation of data capture and the state of preparation of further steps, editing and dissemination as well as the Post Enumeration Survey.

45. The nineteenth mission was conducted by two members of the SC, Ms. Katerina Kostadinova-Daskalovska and Mr. Guido Pieraccini from 15 to 17 September 2014. The ob-

jective of the mission was to assess the data capture and editing phases, as well as PES and dissemination preparation.

46. The twentieth mission was conducted by the complete SC from 18 to 21 November 2014. The objective of the mission was to assess in detail progress made in the data processing phase, as well as PES and dissemination preparation.

47. The twenty-first mission was conducted by three members of the SC, Mr. Jean-Michel Durr, Ms. Meryem Demirci and Mr. Guido Pieraccini from 24 to 27 February 2015. The objective of the mission was to assess in detail progress made in the data processing phase, as well as PES and dissemination preparation.

48. The twenty-second mission was conducted by two members of the SC, Mr. Jean-Michel Durr and Ms. Meryem Demirci from 1 to 4 February 2016. The objective of the mission was to meet the new management of the BHAS and Statistical Office of the Federation and to assess in detail progress made since the last Steering Committee mission one year ago.

49. The twenty-third mission was conducted by the SC Senior expert, Mr. Jean-Michel Durr from 25 to 27 May 2016, and the conclusions and recommendations were discussed with the other members of the SC. The objective of the mission was to assess the consequences of the recent decision of the Director of the BHAS related to the single process to determine the resident status of enumerated persons.

50. The twenty-fourth and final mission was conducted by the complete SC from 26 to 30 September 2016. The objective of the mission was to conduct the assessment of the final phases of the census after the dissemination of the final results on June 30.

51. The expert wish to express his gratitude to the directors and staff of the Agency for Statistics of Bosnia and Herzegovina (BHAS), the Statistical Institutes of the Federation of Bosnia and Herzegovina and Republika Srpska (RS) for their availability and collaboration, and to the staff of Council of Europe for the organisation of the mission.

CENSUS PREPARATION

LEGAL BASIS FOR THE CENSUS

52. Pursuant to the Article IV.4.a) of the Constitution of Bosnia and Herzegovina, the Parliamentary Assembly of Bosnia and Herzegovina, during the 21st session of the House of Representatives held on 3rd February 2012, and at the 12th session of the House of Peoples, held on 3rd February 2012, adopted the Law on Census of Population, Households and Dwellings in Bosnia and Herzegovina in 2013.

53. The Law contains 7 chapters and 48 articles covering the following topics:

- General provision, including definitions, topics covered by the census, date of the enumeration, units encompassed/not encompassed by the census, obligation to answer and optional declaration of ethnic/national and religion affiliation, duties and right of persons engaged in the census, protection of minorities and use of languages, use and protection of data collected, evaluation of the coverage and quality of census data through a post-enumeration survey;
- Organisation of the census, including tasks of the institutions engaged in the preparation and implementation of the census (Agency for Statistics of Bosnia and Herze-

govina, Institutes of Statistics of the two entities, Geodetic administration and some ministries) as well as role and composition of the census bureaus and census commissions;

- Methodology, including questionnaire design and printing, cartographic preparation, enumeration of some categories of population, and publication of census results;
- Financing of the census, including the annual amounts for 2012, 2013, 2014 and 2015;
- Enumeration of persons who temporarily work and reside abroad, including organisation and financing;
- Penalty provisions, for non-respondents or persons engaged in the census failing to comply with their obligations;
- Transitional and final provisions, including destruction of census material afterwards and entry into force of the law.

Assessment

54. At its first mission, the SC made the following assessment of the law:

55. The law is quite comprehensive and covers extensively all the aspects of a population and housing census. In that regard, the law should provide a sound ground for the preparation and the implementation of the census. However, some points may not be completely clarified or stated by the law:

- Art 7, provides that persons usually resident in the place of enumeration but absent, or expected to be absent, at the date of the census for less than one year shall be considered as temporarily absent persons and thus included in the total population of the enumeration area. This category of population is usually a source of problems in the region. Firstly, people living abroad, nevertheless the duration of stay (especially people living in European countries), may consider themselves as still resident if they keep a house in the country and return to BiH regularly for holidays or family events. Then, their family may be willing to include them in the enumeration as resident. Secondly, ethnic representativeness is sensitive and some ethnic groups may want to include their diaspora in the resident population of the country.
- Regarding the sharing of responsibility between the BHAS and entity statistical institutes, the law clarifies many issues, but refers frequently to "cooperation", which needs to be proven in the daily work of the institutions involved. However, the law gives a clear role to the Agency for Statistics in defining the methodology.
- The issue of the access to the complete database by the three statistical institutions is provided by article 22.
- Questions on displaced persons and intention to come back may be on the one hand highly sensitive and subject to some kind of pressure, but on the other hand needed for the application of the Dayton agreement.
- The obligation to give accurate answers leads to the question on how this accuracy is controlled. Article 36 provides that all institutions of Bosnia and Herzegovina are obliged to allow the Agency to use the databases and records under their competencies (databases of births, deaths, displaced persons, registers of residence, administra-

tive records of persons sentenced to prison and so on) to carry out control of statistical accuracy and quality of the data collected in the field. If accuracy is of course a legitimate goal, the census shall remain a statistical operation and not an administrative one.

- Article 26 on the role of census commissions of the units of local self-government provides that the commissions take over the Census material from the instructors, organise and control the coverage and quality of the Census material. These commissions are composed of members nominated by the local self-governments. If their role in facilitating the enumeration by providing premises and organising staff selection is indisputable, they are also interested in the census results. Therefore, in order to ensure strict neutrality, controls should be performed by State instructors and controllers, under the control of the statistical institutions.
- Article 30 gives responsibility to the entities' geodetic offices and the Department for Public Register of the Brčko District Government to complete the cartographic preparation required for carrying out the Census. The article stipulates that the technical documentation shall contain cartographic overviews and descriptions which will enable each enumerator to be orientated in the field and have an overview of the buildings/units to visit. However, it does not give explicit responsibility to the statistical institutions to define the specifications for delineation of enumeration areas (EAs). This may create problem, if the geodetic offices delineate EAs without taking into consideration the requirements of the census.

Main recommendations provided during the census process and their evaluation

56. The SC provided the following main recommendations regarding the census legal basis during its first mission undertaken in BiH in April 2012.

- To develop precise instructions and rules of organisation for the implementation of the law, in particular regarding the enumeration of persons temporarily absent to avoid any inclusion of non-resident persons in the population. This recommendation was partly taken into consideration by the inclusion of the questionnaire of seven questions to identify the resident status. However, some ambiguities were found in the law and gave ground for contestation of the process used for the determination of valid questionnaire.
- To develop precise instructions for the sharing of responsibilities among the institutions involved in the census, such as statistical institutions, ministries or census commissions to avoid misunderstandings and complication during the enumeration. This recommendation was not implemented, leading to many problems observed in the sharing of responsibilities among the three Statistical Institutes. In particular, the role of the BHAS as responsible for the methodology of the census was not enforced.

Final assessment and recommendations for the next census

57. The census law forms the legal basis for the preparation and implementation of the census. It should be given more thorough preparation in its drafting to take into account the lessons learnt from the 2013 census, in particular regarding the strict definition of the resident population, the sharing of responsibilities among the three SIs, and provision for confidentiality, and avoid any possible ambiguity.

BUDGET

58. The law, in its article 38, provides that resources intended for financing Census-related activities and tasks shall be provided from the budgets of Bosnia and Herzegovina, entities, the Brčko District, international donations and other sources. The minimum of required funds provided by the census law amounted to 42,625,603 KM (around 21.8 million Euros).

59. The budget was revised in March 2012 and approved by the three Directors of SIs. The total amount of the census was 36.783.638 KM, including 27.872.817 KM in 2013. The CoM approved the financial plan on its session of April 3.

60. The breakdown of the budget is presented in the table below:

Table 1 - Breakdown of the census budget by phases of the census

Component	2012	2013	2014	2015	Total KM	%
1 Pilot Census	250.337	0	0	0	250.337	0,68%
2 Census preparation	0	2.213.296	793.362	563.092	3.569.751	9,70%
3 Field work	0	20.082.256	1.250.400	0	21.332.656	57,99%
4 Quality control (inc. PES)	0	349.440	0	0	349.440	0,95%
5 Equipment	4.328.766	842.564	71.966	29.231	5.272.527	14,33%
6 Printing and logistic	0	2.294.551	0	0	2.294.551	6,24%
7 Transport	0	321.768	0	0	321.768	0,87%
8 Dissemination	3.419	34.124	443.171	100.855	581.569	1,58%
9 Media campaign	0	594.188	342	342	594.872	1,62%
10 Data processing	0	328.800	816.000	0	1.144.800	3,11%
11 Unforeseen expenditures	137.476	811.830	101.257	20.806	1.071.368	2,91%
Total	4.719.998	27.872.817	3.476.498	714.325	36.783.638	100,00%

61. A 7.5 Million Euros grant was signed between the EU Delegation and the BHAS on May 31, 2013, to cover staff expenditures, such as the payment of enumerators, supervisors, controllers and data processing staff.

62. After several months of discussion, the three directors finally agreed in May 2013 on the way expenditures would be spent. In particular, BHAS transferred the funds to the Entity Statistical Institutions to pay the staff, and entities should pay directly the related social contributions and taxes not only to the entity staff but also to the data processing staff from the BHAS.

Assessment

63. The budget of the census represents around 5.3 Euros per capita, which is in line with European countries. The analysis of the cost structure by activity shows that the cost of the pilot census, of the evaluation (PES) and communication were under the average of European countries.

Table 2 - Breakdown of census budget by activity and region, in %, 2010 round

Activity	Africa	America, North	America, South	Asia	Europe	Oceania	World
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Preparation	7.4	9.0	4.8	10.4	12.3	17.4	10.4
Pilot census	0.9	2.2	1.6	1.0	2.6	1.1	1.6
Cartography	12.9	8.9	32.4	2.3	2.9	1.3	6.3
Communication	4.1	2.9	4.2	6.0	3.5	4.3	4.3
Enumeration	44.5	44.1	36.4	49.8	37.5	32.7	42.9
Printing	3.7	4.4	1.8	5.0	3.6	3.1	4.1
Transport	3.0	1.2	0.5	2.0	1.1	1.6	1.8
Equipment	4.7	5.6	6.5	8.0	10.3	5.3	7.5
Evaluation	0.9	1.2	0.5	1.2	1.2	0.4	1.0
Data processing	5.5	12.2	6.9	5.5	13.4	17.5	9.5
Analysis	1.7	1.8	2.5	1.4	2.8	5.9	2.2
Dissemination	3.5	4.0	1.3	1.6	5.5	5.1	3.7
Other	7.4	2.6	0.7	5.6	3.4	4.4	4.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<i>Number of responding countries</i>							
	17	11	2	22	24	5	81

Source: J.-M. Durr, 2010. The 2010 round of Population and Housing Censuses in the world. 19th National Symposium of Probability and Statistics, Brazil.

64. The mechanism to secure a multi-annual budget and organise the contribution of each entity was a long and complex process. This is due to the particular organisation of the country, that revealed to be particularly unsuitable to finance such a large, multi-year and transnational operation.

65. The financial support of the EU, almost 13 million euros, was highly significant in the total budget of the census. In addition to the 7.5 million euros grant, the EU financed approximately 2.1 million euros for the equipment (hardware and software), 2.3 million euros for the Technical Assistance, and 925,000 euros for the IMO.

Main recommendations provided during the census process and their evaluation

66. The first SC report stressed the importance to secure the multi-year census budget in the early stage of the preparations. This was seen as a paramount milestone in the census project to be monitored closely. This recommendation was implemented with some delays.

67. The SC recommended to organise the budget by sub-domain of the census, corresponding to projects (such as cartography, communication, enumeration, evaluation, data processing, dissemination...) and to breakdown each sub-domain into categories of expenses (staff, equipment...). This recommendation was partly implemented (breakdown by category).

Final assessment and recommendations for the next census

68. The preparation of the budget and securing of funds was long, complex and time consuming for the management of the three SIs. It is essential that the next census be prepared using a mechanism well prepared and agreed at all levels of the relevant institutions (Government, Fiscal council, Entities Governments and SIs). In that regard, lessons learnt from the 2013 census should be documented and taken into consideration. In particular, a strict sharing of responsibilities of expenses among the SIs should be adopted at the onset of the census preparation.

MANAGEMENT AND STAFFING

69. Issues of coordination and cooperation have continuously been at the heart of the difficulties faced by the census preparations and implementation. The decision-making process proved to be largely ineffective and decisions were most of the time only partial and provisional. This, for instance, led to serious delays in the data processing phase due to the absence of agreement among the three SIs on the rules to adopt to determine the residence status.

70. The top management of the BHAS was under replacement from the end of 2014 and was finally replaced only in December 2015. This had negative consequences on the overall management of the census and the decision making process. In particular, divergences among the three SIs were constantly witnessed by the SC, in particular regarding the coding rules for the residence status. In addition, it was noted that the data processing team was not allowed to perform tabulations or editing tests on the complete census database, with negative consequences on the preparations of the editing phases as well. Whereas the SC understood the need for strict control of access to the database to avoid any leaks of information, it was the opinion of the SC that this should be guaranteed by the oaths of confidentiality signed by the staff.

71. There was no census manager appointed in the BHAS. A census coordinator, from the IT department, was in charge of the planning of the operation, with no real authority on the various teams and working groups. This proved to be largely insufficient in many occasions.

72. The staff of the three SIs demonstrated high professionalism and ability to work together during all the phases of the census process, which was greatly appreciated by the SC all along its missions. Whereas the two Entity Statistical Institutes were adequately staffed for the census project, the SC noted that the BHAS was clearly understaffed to perform its activities and responsibilities in an efficient manner.

73. It was also reported several times that working groups could not meet regularly for budget reasons. For example, working groups on communication and logistics did not meet during the first months of the preparations.

Main recommendations provided during the census process and their evaluation

74. Since its first mission, the SC recommended that the line of responsibilities and line of reporting should be clearly defined and explained in the organisational manuals for each participant in the census activities. This recommendation was never implemented and the line of responsibilities remained unclear all along the census process.

75. The SC constantly urged the three Directors of SIs to agree on a strict decision making process to facilitate the preparation and implementation of the census activities. However, such a mechanism was not agreed upon, which generated a lot of frustration in the staff of the three SIs, and hampered the smooth preparation and running of the census operation.

Final assessment and recommendations for the next census

76. In order to efficiently manage the preparation of the next census, the SC strongly recommends:

- To clarify the issue of coordination among the three SIs and sharing of responsibilities as a priority;

- To establish a strict and precise decision making process, accepted and respected by the three SIs;
- To reinforce the BHAS needs to be able to take the lead of the preparation and implementation of the next census;
- To appoint a census manager at the BHAS, with strong experience in census as well as in project management.

CENSUS METHODOLOGY AND INSTRUCTION MANUALS USED IN THE CENSUS

77. According to the Census Law, BHAS was responsible to prepare and prescribe the Census Methodology. The methodology used for the census was the traditional method, canvassing the entire country, reaching every single household and collecting information on all individuals within a brief stipulated period. Each enumerator was assigned to conduct the enumeration in a specific area, named enumeration area, and was requested to go door-to-door to enumerate the households.

78. The document titled “Methodology for preparation, organization and conducting the Census of population, households and dwellings in BiH, 2013” was prepared by the methodology team consisted of methodologist from the three SIs. The basis for preparation of the Methodology were the two manuals used in the Pilot Census. The Manuals were updated and amended in accordance with lessons learned from the Pilot Census, recommendations received from the SC and amendments in the census questionnaires. The Methodology consists of 3 parts:

- General part (Census Law, definitions and explanations about the census aims, units to be covered, census reference moment, period of enumeration, census participants, census forms etc.);
- Organization and conducting (performing) the census;
- Instructions for enumeration.

79. The Census Methodology document was designed as a framework based on which the manuals were prepared such as: Manual for Organization and conducting of the Census, Manual for enumerators and municipal instructors and manuals for enumeration of special categories of persons. These manuals are drafted with the assistance of BiH Ministry of Foreign Affairs, BiH Ministry of Justice and BiH Ministry of Defence.

80. According to article 47 of the Census Law, “More detailed preparation, organisation and carrying out of the fieldwork may be additionally regulated by the entities and the Brcko District legislation which must be in line with this Law”. According to this provision and based on the framework Census Methodology prescribed by BHAS, the entity statistical institutions prepared the Manual for Organization and conducting of the Census in their respective entities.

Table 3. Census manuals according to responsible party for preparation and aimed user

Responsible for preparation	Title of the document	To whom responsibility was aimed
BHAS	Methodology for preparation, organization and conducting the Census of population,	- State instructors - Entity instructors

	households and dwellings in BiH, 2013	- Members of Census Com-missions
Entity statistical institu-tions (that are obliged to submit for BHAS approval before adoption)	Manual for Organization and conducting of the Census (based on the second part of the Census Methodology)	- Entity instructors - Members of Census Com-missions
BHAS	Manual for enumerators and municipal/ city instructors (based on the third part of the Census Methodology)	- Enumerators - Municipal instructors
BHAS	Manual for conducting enumerations of the persons working in BiH embassies and DCR	Ministry of Foreign Affairs of Bosnia and Herzegovina and the Staff responsible for enumera-tion
BHAS	Manual for conducting enumerations of the persons in prisons	Ministry of Justice of Bosnia and and the Staff responsible for enumera-tion
BHAS	Manual for conducting enumeration of the BiH military personal abroad in military missions.	Ministry of Defense of Bosnia and Herzegovina and the Staff responsible for enumeration

81. The three manuals for conducting enumerations of the persons working in BiH embassies and DCR, persons in prisons and BiH military personal abroad in military missions were prepared by the methodology team in consultation with and approval of the respective Ministries.

82. All manuals were printed in the three official languages and the two respective alphabets.

Main recommendations provided during the census process and their evaluation

83. The SC recommended that comprehensive manuals be drafted for each participant in the census activities:

- These manuals should not only describe the assigned tasks but also explain how and when the tasks are to be performed, inputs, deliverables and reporting.
- A useful exercise during drafting the organisational manuals is to answer the question "who is responsible to solve a particular problem when it arises".
- In drafting these manuals, it is important to tailor the style and layout to the category of census staff they target.

84. These recommendations were only partly followed, and the instruction manuals remained quite formal and not user-friendly.

Final assessment and recommendations for the next census

85. The traditional methodology used for the 2013 census proved its efficiency, especially in the context of a country that did not conduct a census since 22 years. For the next census, the same methodology could be used, but taking into consideration the new technologies available, in particular for the data collection (see below). More attention should be paid to the preparation of the manuals of instructions, to make them more user-friendly and thus more used.

CENSUS QUESTIONNAIRES

86. The units and topics covered in the 2013 Census were defined with the Census Law. The covered census units and topics and their definitions were in compliance with the 2010 Census Recommendations¹ as well as with EC Regulation (EC) No 763/2008 of the European Parliament and of the Council of 9 July 2008 on Population and Housing Censuses and EC Regulation No 1201/2009. All topics recommended as core in the CES Recommendations are included in the census. In addition, some of the recommended non-core topics as well as topics of interest for the country are also included.

87. The total population of BiH was defined as the sum of all persons having their place of usual residence in BiH, in compliance with international and EU definitions.

88. The following forms were used for field data collection:

- Personal Questionnaire (P-1) for data on persons, and
- Household and dwelling Questionnaire (P-2), for data on dwellings, buildings and households.

89. In addition, a "Control Form" (P-3) that has multiple roles was used to serve for the following:

- for recording all addresses within the enumeration area (EA) and assigned ordinal numbers of the enumerated buildings, dwellings and households;
- for recording results by dwellings, and
- for calculation and recording the preliminary results for the enumerated area.

90. During the preparation of content of the questionnaires considerable time was spent for the formulation and wording of the questions for determining the persons residence, as well questions on ethno-cultural characteristics and citizenship.

91. The topics on ethno-cultural characteristics of the person were included as the country has tradition in collecting these data and also special interest about them. The questions were initially formulated as semi-open and not as open questions as recommended in the CES Recommendations. These questions were considered as sensitive since the census was seen by many as a count of the population by ethnicity/nationality.

92. Since its first mission, the SC recommended to carefully check and test the wording of the questions to avoid misunderstandings and to revise the formulation of the questions on ethnicity/nationality and religion. Firstly, the item "not declared" should be separated from other items, and put for example after. Secondly, a strictly open question should be considered, to avoid any risk of bias in the responses when some answers are proposed, but also to not describe some ethnic groups as "others", which may sound disrespectful.

93. The formulation of these question raised disagreement among the two entity SIs, one being in favour of a strictly open question and the other supporting the collection of ethnic affiliation in the three "constituent people" described in the constitution, plus "others", while the BHAS was in favour of following the recommendation for a strictly open question. These

¹ "Conference of European Statisticians (CES), Recommendations for 2010 censuses of population and housing", prepared in cooperation with the Statistical Office of the European Communities, (EUROSTAT), issued by United Nations, (New York And Geneva, 2006)

discussions were clearly the expression of political debates in the country. In addition, RS asked to include a question on the “Entity citizenship”, that was not initially in the Census law. As a consequence of the impossibility for the three SIs to reach an agreement, the BHAS asked guidance to the Council of Ministers.

94. Based on conclusions of the Council of Ministers at its session held on 28 February 2013, BHAS prepared a proposal formulation of the question 19 related to citizenship, question 24 on ethnicity, question 25 on religion and question 26 on mother tongue. The Council of Ministers at its session held on 16 April 2013 had a discussion on the draft versions of mentioned questions and adopted the following conclusions:

- Question 19: Citizenship, beside the previously harmonized modalities (Bosnia and Herzegovina, BiH and other country, other country and without citizenship), shall also contain modality for entity citizenship;
- Questions 24-26: Ethnicity/nationality, Religion and Mother tongue shall be semi-open type of questions, and the enumerator shall not read the modalities to the respondent;
- Codebooks shall be drafted after the enumeration, and the unified database will contain records of all the answers.
- Added modality on entity citizenship in question 19. Citizenship will enable the persons who wish to do so to give an answer on their entity citizenship. Answering the question on entity citizenship should be voluntary but answering the question on state citizenship is mandatory. BHAS was tasked to submit a technical proposal on the formulation of the question.

95. The decisions taken on 16 April 2013 were confirmed by the Council of Ministers during its session held 25 April, with adoption of the minutes from the last (46) session.

96. The SC took note of this decision while maintaining its recommendation for a strictly open question on ethnicity, religion and mother tongue. However, it was noted that this decision put an end to the discussions on the questionnaire and opened the gate for the final preparation of the census.

97. The census questionnaires were tested in the Pilot census (see below). Lessons learned from the pilot census and recommendations of the SC were mostly taken into consideration for the final questionnaire.

98. The census questionnaires were printed in Bosnian and Croatian language with Latin alphabet and in Serbian language with Cyrillic alphabet. All enumerators received a booklet with translation of questionnaires P-1 and P-2 questionnaires in 15 other languages (including English), spoken by the population of other national origin residing in BiH. These booklets were only developed to facilitate the enumeration and did not serve data recording purpose (See P-1 and P-2 in Annex).

Final assessment and recommendations for the next census

99. The questionnaires proved to be complex, including double meaning of some questions (the same question having two different meaning according to the response of a previous question, such as Q3) and many skips for persons under a certain age not well structured. This created some confusion that was observed by the IMO during the enumeration and many errors due to un-respected skips were found during the data processing phase. This was due partly to the main focus given to the formulation of the questions 1 to 7 on the resident status

and the sensitive questions. For the next census, a better preparation and testing should be carried out, to allow a more straightforward conduct of the interview. For example, the questionnaire should be clearly organised with a first part to be answered by everybody, and then questions for persons over a certain age, with a clear demarcation in the questionnaire.

100. However, SIs should consider the user of electronic devices for the data collection of the next census, as this technology allows to embed controls in the application and to generate automatically the questions according to the answers to previous ones, such as the date of birth.

PILOT CENSUS

101. The purpose of a pilot census is to test the entire system of conducting a population census. The BiH Pilot Census was conducted in October 2012 in 60 enumeration areas. In the Pilot all aspects were tested including the prepared census questionnaires and manuals: a) Instructions for Organising and Conducting Pilot Census, b) Manual for Enumerators and Municipal Instructors for Pilot Census”. Manuals provided the necessary methodological and technical explanations on how the enumeration should be performed as well as explanation on how enumerators and municipal instructors should perform their assigned tasks.

102. An international monitoring was organised during the pilot census. The monitoring took place between 10 and 29 of October 2012 and was conducted successively by the members of the SC. The objective of the mission was to observe the conduct of the pilot census in the field. In addition, a team of four observers was present during the whole period of the pilot census. Each of them covered several municipalities, in order to observe the pilot census field operations in all the 60 enumeration areas.

103. Despite late preparation, the pilot census was conducted in a satisfactory way. All institutions and staff involved demonstrated high commitment to the operation. The population, even in the absence of large communication campaign, was supportive to the operation and participated actively. The media showed great interest in the pilot census and were eager to cover the operation, focusing on the technical and practical aspects for the population. This was very encouraging for the real census, which seemed to be eagerly expected by the country.

104. Beyond the general positive appreciation on the operation, the SC noted several issues that required to be treated before full-scale implementation. The main problems were related to:

- Questionnaires: to be reviewed in light of the lessons learned from the pilot census. In particular, formulation of some questions, as well as path and skips in the questionnaires according to specific situations of age or activity, should be revised. In that regard the SC provided a detailed list of recommendations;
- The structure and the content of the two manuals of instructions prepared for the Pilot Census were judged to be appropriate for the Pilot Census with some shortages that should be amended before the census. The manuals did not present all duties of MCCs and census field staff properly. In particular, the duties of Municipal Instructors (MIs) given in the instructions for organisation were found to be very limited and not given in the appropriate manual. The SC recommended to revise those manuals according to the experience and lessons learned from pilot census and the review of the questionnaires and provided the following suggestions to improve the manuals:

- To be revised accordingly, to provide more examples and clarification of some difficult questions. Instructions should be presented following the timeline of activities;
 - Clear instructions to be given regarding people living abroad. The specific operation provided by the Census Law should be developed, tested, and implemented at the same time of the enumeration in the country to avoid duplicates;
 - The structure of each manual should be more operational oriented, for example describing the duties along the timeline of the operation: one week before enumeration, one day, the first day..., after enumeration... Specific annexes could focus on particular situation, such as "what to do in case of refusal". Each question should be presented in more detail, giving some examples and possible cases;
 - The manual for enumerators and municipal instructors should provide the roles of the enumerator and MIs in detail and underline their duties, collaborations between them and with the members of municipal commissions;
 - Duties of the MI in controlling the coverage of the enumeration and the work of enumerators should be improved and explained clearly in the manual. Also, the methodology for controlling the coverage of housing units and persons in the field should be improved with more professional approaches such as application of independent visits by the MI to check some basic information for a sample of dwellings in order to measure systematic census errors during the enumeration.
- Training materials: to be improved in a more educational way and to adapt them to the target public. Guidelines for trainers should be developed;
 - Logistics: to be improved;
 - Cartography: the numbering of buildings on the maps could be improved in order to have unique ID codes for each address of buildings. Prior to the enumeration, maps should be updated and new buildings listed to better estimate the number of households to enumerate and take decision of splitting in two EAs if needed.
 - Communication campaign: to be developed, in light of the lessons learned. Communication messages should be uniform across the country to avoid discrepancies.
 - System for monitoring the enumeration: to be developed and tested before the census.

POSTPONEMENT OF THE CENSUS

105. The SC considered that the pilot census was conducted successfully, but the SC expressed reservations about the preparation of the population and housing census. The way the statistical institutions would be able to take quick decisions from the analysis of the pilot census and implement on time technical improvements would be decisive in determining whether the objective of conducting the Census in April 2013 as initially planned could be met.

106. In particular, the SC considered as a major condition that by the beginning of December 2012, that questionnaires were revised according to its recommendations, and a detailed plan for census logistics was prepared.

107. In December 2012, the SC assessed that the technical preparations were not at a satisfactory level that could allow conduct a census in April 2013. The SC unanimously strongly recommended a postponement of the census by minimum 6 months (first possible period Oc-

tober 2013). This recommendation was endorsed by the IMO-MG and forwarded to the government of BiH, which accepted this recommendation and decided to postpone the census to 1-15 October 2013.

LOGISTIC AND PRINTING

108. All logistics procedures were finalised in April 2013. The procedures defined the eight steps starting from packing the census materials in the printing house up to the final step of receiving the census form from scanning room and storing in the central place.

109. A computer application, CMIS, was developed to permit tracking the status of the material from box assembly to processing.

110. Several tender procedures were launched, such as for printing and transportation of census material and the data processing centre, but these were launched quite late in the process. There was a lack of experience in this area, and the SC alerted regularly on the risk of failure in case a tender procedure could not be finalised on time, for example due to contestation of the decision by one of the bidders. In particular, it was explained that there was no need to finalise the questionnaire and to know the exact number of documents or number of pages of each document to draft the specifications and call for tender. A minimum and maximum number of documents could be specified and price requested by tranche as well as price per page.

111. Despite a delayed start, the printing of census material was conducted in a satisfactory manner and delivery carried out on time, before the beginning of enumeration operations. No particular complaints were received from municipalities about the delivery of materials.

112. The management of the reserve of questionnaires was not sufficiently centralised and during the second week of enumeration, a certain shortage of questionnaires were discovered in some municipalities. This problem was solved by printing new questionnaires and also by organising transfers between municipalities. This had no consequence on the enumeration, however, some enumerators had to stop working one or two days.

113. The procurement of premises for a central data processing centre was completed before the enumeration and the work to prepare the place to receive the questionnaires after the enumeration was immediately initiated including preparations of the working area for data processing. The SC could visit the place during the renovation.

Assessment

114. There was a clear lack of knowledge regarding tendering procedures. For example, there was no need to know the exact number of documents or number of pages of each document to draft the specifications and call for tender. A minimum and maximum number of documents could be specified and price requested by tranche as well as price per page.

115. Time required for procurement procedures, including time required for possible appeal, was systematically underestimated.

Main recommendations provided during the census process and their evaluation

116. The SC constantly made recommendations about the procurement operations, urging the BHAS to start the process and avoid waiting for full specifications, for example of the number of pages of the manuals. In addition, the SC recommended to include provisions for incidents, such as the need for immediate re-printing. These recommendations were not fol-

lowed and procurement processes were launched late, generating pressure on the management and the staff. The additional printing of questionnaires during the enumeration could be obtained, but at high cost.

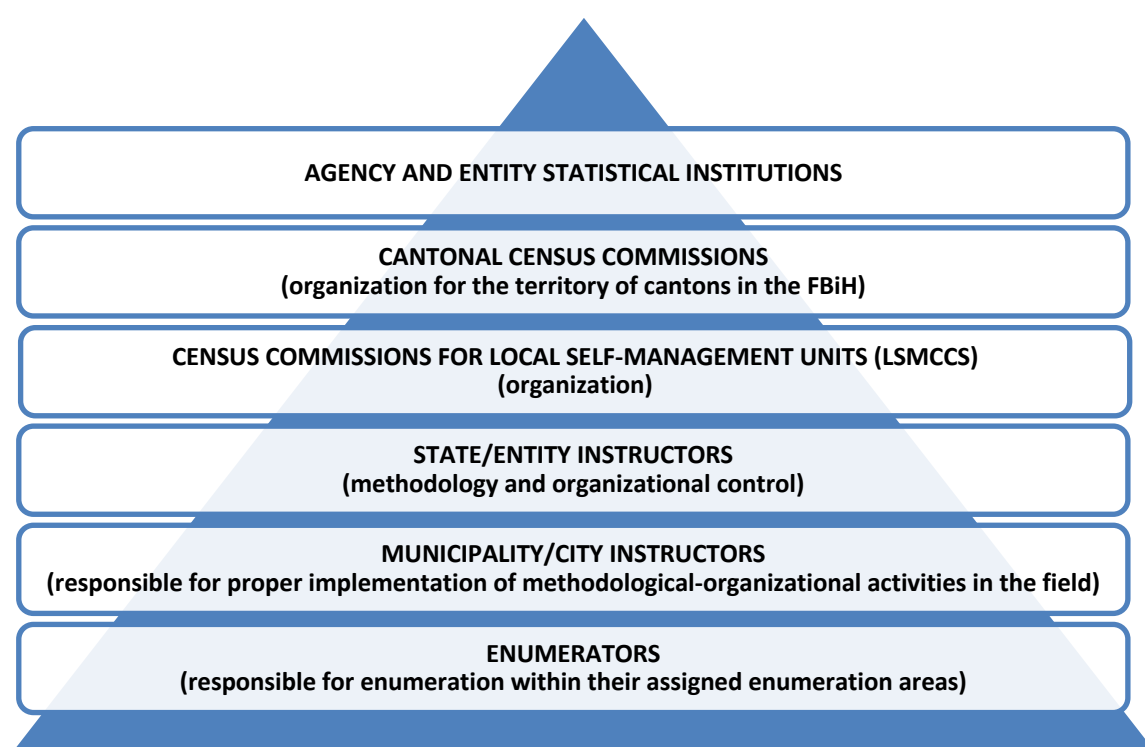
Final assessment and recommendations for the next census

117. In order to better prepare the next census, the BHAS should improve its knowledge of the procurement procedures in force in the country, including the clauses to include provisions for uncertain incidents (postponement, accidental destruction of material).

ENUMERATION

118. The management structure set up for the preparation and conduct of the census was defined by the Census Law. The tasks and responsibilities of all participants involved in the organisation and conducting of the field data collection were assigned with the Census Law and explained in details in the census Methodology and respective census manuals.

Figure 1. Organisational chart of institutes, bodies and census field staff involved in the 2013 Census in Bosnia and Herzegovina



OBSERVATIONS ON THE FIELD WORK INVOLVING THE ENUMERATION OF THE POPULATION

119. The objective of the 13th mission of the SC was to assess the enumeration phase of the population and housing census. To achieve this objective, the SC was assisted by a team of 27 international observers, deployed over the country with the task of monitoring the work of all actors involved and to assess whether the census data collection was conducted in compliance with the Census methodology and international standards. Observers were organised in 6 teams, under the leadership of a team leader, senior observer, in 6 zones (see map in An-

nex). All municipalities were visited at least once during the observation period and all municipal commissions met. More than 1000 interviews were observed (1093), corresponding to the enumeration of 3,500 persons.

CONDITIONS AND GENERAL ATMOSPHERE SURROUNDING THE CENSUS

120. The census was carried-out in a suitable period of the year, where most of the people are present in their usual place of residence. In addition, the census period covered two weekends, which made it easy to find people at home usually absent from home during the weekdays.

121. The general atmosphere surrounding the census was positive and people eager to be enumerated. Most residents were aware of census, welcomed the enumerators, and in most cases gave accurate and full answers to all questions.

122. However, this good will existed although with a lack of understanding of the real census scope and quite many confused opinions about the purpose and scope of the census. The lack of trust in public institutions and the fact that the personal ID number was asked led people to think that their answers would not be treated as confidential. For example, many people believed that declaring agriculture properties would lead to taxation consequences.

123. Some informal groups organised a disinformation campaign, calling people living abroad to return to BiH to be enumerated in order for them to avoid losing their properties and their citizenship. Some individuals engaged a lot of expenses to return to BiH for the enumeration, and when explained that they should use the Internet procedure they were very dissatisfied to have engaged such expenses without purpose.

ESTABLISHMENT AND FUNCTIONING OF ALL CENSUS BODIES

124. All the Commissions were established and in general functioned well. All the municipal commissions were managed very efficiently, and were well organised to face any difficulty or problem arising. Some MCCs even provided municipal funds to as back up in case of payment delays. Many of the MCCs provided transport facilities, including municipal vehicles to transport enumerators to their place of work. In the FbiH, Cantonal Census Commissions were also functioning well providing support to the Municipal Commissions.

125. The rule of “ethnic representativeness” was respected, but resulted in being artificial for the functioning of the Commission, as cases of representatives hired from non-majority ethnic groups in order to fulfil the “ethnic representativeness” remained marginalized.

126. Some MCCs were not perfectly neutral in relation to the ethnic and administrative characteristics of their residents and/or field staff. They showed therefore a desire to “monitor” the IMO observers.

127. The Central Census Commission worked well and held regular meetings prior to and during the enumeration. All incidents reported to the CCC were handled and decisions taken, for example regarding the additional printing of material.

SUPPLY OF CENSUS MATERIALS

128. The field census materials were timely delivered to the municipalities. In very few cases situations with mix up in the boxes containing materials for the enumerators were reported.

129. The initial supply of census materials was well done in most municipalities - timely and in good order. In a few cases materials were provided at a very late stage. In many municipalities census questionnaires ran out during the later stage of the census, and in a few municipalities some enumerators had to interrupt their work, as it took about two days to receive new census forms.

PROVISION OF WORKING SPACE

130. The organisation of the offices and office space was very diverse from one municipality to another. The majority of municipalities provided appropriate office space for the census teams. Although some were quite poor, the premises were generally adequate. In some remote areas municipal instructors and enumerators had to meet in public spaces or at the home of the instructors.

SELECTION, APPOINTMENT AND PAYMENT OF ALL CENSUS STAFF

131. The selection and appointment of the members of the census bodies as well selection of the all staff involved in the direct census field data collection was conducted in accordance with the "Procedures for selection of census bodies and staff to be engaged in Census of Population, Households and Dwellings in BiH in 2013".

132. The mode of remuneration was finally adopted before the enumeration as follows:

- Members of municipal commissions (MCCs) would receive 900 KM, or 1500 KM if the municipality has more than 60,000 inhabitants;
- Municipal Instructors would receive 90 KM per enumerator they have to supervise;
- Enumerators would be paid 2.2 KM per questionnaire (P1 or P2) in urban area and 2.5 KM in rural areas.
- Transport costs would be covered only if the distance is more than 10 km from home.

133. Because of the late decisions and insufficient information given on the remuneration provided to candidates, many enumerators resigned and this created difficult conditions at the beginning of the census enumeration. In addition, contracts were not ready before the start of the operations, and many enumerators could sign their contract only after one week in the operations, and even later in some cases. The main reasons were considerable delays in verifications of personal information. The resignation of many enumerators during or after training created also difficulties in finalizing the list of appointed enumerators.

134. The organisation of fieldwork was composed of 36 State Instructors, 184 Entity Instructors, 2509 municipal instructors and 19089 enumerators.

135. Entity instructors were all very skilled and professional. Most of the municipal instructors mastered census methodology and organizational processes well. However, their in-

experience in census conduct led some of them to interpret methodological instructions in a personal way. For instance, a majority of instructors considered the importance to respect the right of respondents to self-declarations so crucial, and therefore forgot emphasising towards their enumerators on the necessity to well explain certain rules and concepts.

136. Enumerators were selected according to the criteria set and a large majority of enumerators had the required skills. A quite large number of enumerators initially selected and trained were students still at university. As the enumeration was progressing, some enumerators had to be replaced in almost every municipality, whether because they resigned, or because they were dismissed due to bad quality of the work. Municipalities faced the problem of lower skills of reserve staff, and therefore had to put special efforts on the follow-up of the newcomers.

137. The recruitment of enumerators according to the ethnic composition derived from the 1991 census, appeared to be a problem in some areas since many “minority” enumerators resigned shortly after the training and it was not possible to find other enumerators belonging to the same ethnicity in the reserve lists. In most cases, the problem was solved by recruiting enumerators of the same ethnicity from other municipalities.

138. Finally, the payment to the census participants was delayed as well due to the late release of the EU grant to finance the fieldwork and the complex verification procedure for the provided services.

FIELD STAFF TRAINING

139. The training for census field staff was following a “cascade” approach: training for State Instructors and Entity instructors (first level), training for the members of MCC and municipal instructors (second level) and training for enumerators (third level).

140. The first and second level trainings were organized (in terms of logistics) by a company selected and financed by EUPHC II.

141. The first level training for State and Entity Instructors was carried out for 40 state instructors and 250 entity instructors. The training was held from 26 to 30 August 2013 in five classes simultaneously, three in Sarajevo and two in Banja Luka. The five teams of trainers were balanced, consisting of census methodologist and other census related staff from BHAS, FOS and RSIS.

142. The training for the members of MCCs and municipal instructors was held from 6 to 10 September 2013. For MCC members only two days of training was arranged because the MCC members only dealt with the census logistics. The training for MIs lasted 5 days. The training was provided by the trained state and entity instructors.

143. The training for the enumerators was held from 16 to 20 September 2013. In average, one MI was responsible for supporting and supervising the field work of 7 enumerators. For the training classes of 3 groups i.e. 21 ENs (in average) were formed, thus 3 MIs were providing the training for one group.

144. For the training of all census staff 26 Power point presentations accompanied with word documents with slide notes were prepared. A CD with the training presentations and word documents with the slide notes was prepared for all census staff supposed to deliver trainings. The training presentations were well prepared and the training Agenda and slide

notes were used as guidance for the trainers how to run the training and what to say for each topic.

145. For the training of the municipal instructors, the SC recommended to pay special attention to the municipal instructors for their role referring checking and reporting the dynamic of the enumeration and coverage of the census units in the EAs of their responsibility. This should allow timely reaction and taking necessary measures for completing the enumeration within the time period prescribed in the Census Law.

146. Not all municipalities had the necessary projectors and laptops available and some of them could not provide the equipment at all. In addition, one could not expect that all selected municipal census instructors had private computers available to use the CD with the training presentation and to prepare themselves for the training they had to deliver. To overcome the shortage and not to jeopardize the training quality and the uniformity of the content, the SC recommended the three institutions BHAS, RSIS and FOS to make common efforts to prepare and deliver where needed printed manuals for trainings and presentations (or other possible tool) for following the training by enumerators. The SC recommendations were taken into account.

147. During its mission, on 6 September 2013, the SC paid a visit to a training centre (for training of members of MCC and MIs) in one municipality and assessed that the training was well organized.

EVALUATION OF ENUMERATORS

148. In general, enumerators performed well in all the municipalities. It should be pointed out that most enumerators seemed extremely committed to their work, considering they were working for the future of their country.

149. However, for a set of topics of the questionnaires, the enumerators did not seem to have retained much information on why certain questions should have been asked in a certain way, and therefore were not able to convey the message when they were themselves asking questions, neither to elaborate on the questions in order to obtain better answers. In addition, it was observed that after the first days of fieldwork, the enumerators had become very quick in running through the questionnaire and writing down answers, instead of trying to obtain the most “correct” or “close to reality” answer, devoting more time to interviewing. Some enumerators mentioned that the training was not sufficient and that they would have appreciated less theory and methodology in favour of more concrete examples.

150. Enumerators rarely informed the respondents that the questions on ethnicity and religion were optional.

UNDERSTANDING OF QUESTIONNAIRES AND SUITABILITY OF DESIGN

151. Although enumerators knew the methodological rules, it was sometimes difficult for them to understand the meaning of these rules, and consequently to provide the appropriate explanation to the household in order to get a proper answer.

152. In general, the size of the characters in the questionnaire was very small, thus uneasy to read.

Questionnaire on household and dwelling (P-2)

153. Globally, enumerators understood well the different topics of the dwelling form P2: data on housing, data on building, data on household and list of household members (even if they sometimes listed people that were not really household members as they reside elsewhere).

154. The most important problem was to establish the list of persons when people wanted to have members of their families living abroad enumerated in the household, or when somebody living abroad came to be registered with the ID numbers of all the family.

155. The P-2 form was generally filled in without any problem or misunderstanding. Nevertheless some questions were more difficult such as those related to data on the building: surfaces in m², materials and year of construction.

156. The number of rooms, as well as the surface of the kitchen were subject to diverse interpretations according to the way the kitchen was considered, either as one room or only as a kitchen. Indeed, in many dwellings, the kitchen is a part of the living room, especially in urban areas, for what is called "American kitchen" just delimited by a half-high wall.

157. In some EAs, people renting a flat were registered as "temporarily present" because they do not know for how long they would stay.

158. The main difficulty in the P-2 form was data on agriculture, because some people feared tax/fiscal consequences of declaring land and therefore refused to declare some variables. There were also difficulties when the household was using a piece of land not owned by the household and, vice versa when the household owned a property which could not be used because the land is located in the other entity or used by somebody else.

159. Some difficulties were also noted on understanding the difference between "relationship to head of household" and "family status".

Personal questionnaire (P-1)

160. This form was generally filled in without problems except in some specific cases for some specific questions.

161. Some municipalities recently changed their names. Therefore in questions referring to place for, some respondents were using the old name of the municipality. The IMO considered such cases be taken into account during the data processing phase.

162. Questions on the last migration (Q10-Q11) were not well understood because of the wording used. Very frequently the person was not born in the place of the residence and the answer to Q10 was "No". The same holds for persons who stayed more than 12 months abroad (Q12), or who were displaced or refugees (Q14-Q15).

163. Q12, about persons who continuously resided abroad for one year or longer, was also not well answered, maybe because people wanted to stress that they were residing in BiH. Some persons living abroad since many years declared they had not continuously resided outside BiH because the respondents were coming back for vacations.

164. Enumerators did not know how to deal with children, born after 1991, about the status of refugee or displaced person.

165. Q16 on displaced persons, a recurrent error about the settlement the person was displaced from was observed: in many cases the enumerator asked for the first place the person went after the displacement, instead of the place the respondent was living just before displacement.

166. The question on “entity citizenship” raised many questions and misunderstandings. In some cases, people did not understand this question, in others, respondents considered this question as purely political.

167. Q29-Q31 on level of education: enumerators mixed very often the level currently attended and the level completed. They also had difficulties to distinguish between the old program and the Bologna one.

168. Q32 on economic activity: the formulation was too complicated. Some enumerators refused to take into consideration the informal work.

169. Q38 on occupation: people with a high level of education wanted to be registered as the profession they can have with their diploma instead of their current lower level job.

170. Q44 on disabilities: many enumerators asked the question wrongly, and as a consequence persons using glasses were systematically considered as having difficulties to see. In addition, many enumerators forgot to ask for the cause of disability.

171. There were some confusion regarding the numerous filters in the P-1 questionnaire; sometimes enumerators filled in information when it was not required (ex. Q28 for persons born after 1 October 1998) or did not fill in while it was required (ex. Q37 for people searching for a job but that never worked before).

SUPERVISION BY MUNICIPAL INSTRUCTORS

172. Most of the municipal instructors accompanied their enumerators to identify the boundary of the EAs at the beginning of the enumeration and followed the rules of visiting all of their enumerators a couple of times in the field. This was a useful way to identify mistakes or misunderstandings early, and avoiding repeating similar mistakes. After setting-up the fieldwork, municipal instructors were mostly responding to enumerators’ questions by phone or during the periodical meetings conducted with them.

173. Most of the municipal instructors met with their enumerators either at the beginning or the end of the working day to control completed questionnaires and to examine the housing units in which no respondent was available. In the second half of the enumeration period, it was observed in some places that completed questionnaires were not fully controlled for all enumerators and that more attention was given on completing the enumeration of remaining housing units.

174. Completed questionnaires were fully controlled by the instructors at the end of the enumeration. This was done either in the community places allocated for daily meetings between enumerators and instructors or in the premises of the MCCs. In some municipalities, enumerators used the control forms given in the training to list the housing units and write down the results of enumeration during the fieldwork. After completion of the enumeration, the enumerators copied this information on the official control form which included a barcode. However, copying the information from the temporary form to the official form might have caused some errors affecting the preliminary results.

SUPERVISION BY ENTITY INSTRUCTORS

175. Entity instructors usually controlled the enumerators’ material together with the municipal instructors, and stayed in daily contact with them. At the same time, they were able to

answer questions regarding the census methodology and emerging issues appeared during the enumeration.

176. In a later phase of the data collection, systematic checks of the questionnaires turned into random ones. Entity instructors were permanently on board in the MCCs in particular to assist the work of MCCs during and after the enumeration.

MONITORING OF ENUMERATION PROGRESS

177. The enumeration progress was monitored through CMIS at the level of municipalities and entities by relevant census bodies. It was observed that most MCCs found this system very useful for daily monitoring and was used actively during the enumeration. Also, using the system to enter preliminary results of the fieldwork and monitoring the logistics of census materials was very efficient.

PARTICULAR INCIDENTS

178. Due to the size of the operation, every census is subject to incidents, and the census in BiH was not different from that of other countries in that regard. For example, unofficial enumerators were trying to visit households in one place before the enumeration and were immediately reported to the police. In another place, two enumerators were found incidentally crossing the BiH border to visit relatives, with census forms in their car; or in another case an enumerator was reported conducting the interview in a public area. All these cases were handled appropriately and timely by the Municipal Commissions and enumerators replaced immediately.

179. In some places around the boundary between entities, some people wanted to be enumerated by the other entity than the one conducting the census in their enumeration area. These cases were also handled smoothly thanks to good cooperation between the two municipalities involved from FBiH and RS.

180. An NGO created a website named "Popis monitor" (<http://popismonitor.ba/>) to record incidents and complaints on the census, but without a clear methodology. At the end of the enumeration, only 150 cases were recorded, which did not prevent this NGO to hold a press conference stating that the census was questionable in 500 EAs, and in 20% of the forms, without providing any evidence or explanation.

PROCESS AND ROLES OF CENSUS ACTORS FOR COLLECTING CENSUS MATERIALS

181. Most of the MCCs collected census materials in the period of 16-20 October 2013 after the end of enumeration period. In these places, enumerators kept the census questionnaires at home until 16 October and the questionnaires and other materials were collected according to the schedule prepared by the MCCs. In some places, the MCCs started to collect the materials as soon as the enumeration of the EA was completed because of pressure for enumerating people living abroad.

182. After final controls of census questionnaires, the MCC members entered the aggregated numbers of enumerated housing units, households and persons for each EA in the CMIS system using the information available in the Control List.

183. Census materials were stored in locked rooms, generally in the premises of the municipalities, under video surveillance. In some municipalities, the premises for storing census materials were located in a different building than the building of the municipality because of unavailability of security facilities in the municipal building.

COVERAGE OF HOUSEHOLDS AND DWELLINGS/HOUSING UNITS

184. In all EAs observed, all dwellings were systematically reached. Until the last days of the enumeration period, enumerators went on the field in order to try to reduce the number of empty dwelling, or to succeed in conducting the interview when people were postponing the appointment for the enumeration. In some areas a quite important number of actually vacant dwellings.

185. Enumerators followed the procedure to leave a note with information on how to reach the enumerators to make an appointment, and also to visit several times at different hours of the day. In some cases, enumerators asked for some information regarding absentees in the neighbourhood.

ASPECTS CONCERNING THE DEFINITION OF USUAL RESIDENTS

186. The main problem regarding the definition of usual residents concerned people living abroad. In some places people living abroad were registered as “temporary absent” and for the duration of absence (Q4) the number of months elapsed since their last stay was recorded. For Q5, “how long the person intends to be absent”, the answer was in some cases the number of months until the person returned on holidays. Generally, the addition of these two durations was less than 12 months, as the minimal duration to be considered as resident is to have been present for at least 12 months or to intend to stay at least 12 months in the place. Doing so, as was suggested in the leaflet of the so-called “Foundation Census 2013”, people living abroad could be included in the resident population.

187. Possible over-counting of persons due to the wrong enumeration of non-residents as usual residents (especially people living abroad) was observed during the enumeration as people residing abroad were encouraged by some unofficial campaigns to answer to Q1-7 in a way to be considered as residents. In some cases, pressure on enumerators existed to enumerate people living abroad as residents.

ETHNICITY, LANGUAGE AND RELIGION ISSUES

188. The enumerators frequently omitted to inform the population that they could refrain to answer to the questions on ethnicity and religion. However, answers were most of the time provided spontaneously and directly, before the enumerator finished asking these questions. This was a clear outcome of the influence of the campaign carried-out by interest groups on these variables.

189. All questionnaires bearing errors on questions about ethnicity and religion were systematically cancelled and replaced, in order that no deletion can affect the answers on the form.

CONFIDENTIALITY

190. All census field workers met were aware of the rules regarding confidentiality and were paying special attention to these rules. They all had signed a confidentiality statement. Enumerators were responsible for their questionnaires until handed over to their municipal instructor at the end of the enumeration. This practice raised concerns from some NGOs, but this is actually the normal practice. Indeed, it is recommended to give the responsibility of the questionnaires to one person rather than to dilute this responsibility between the enumerator, the supervisor or the municipal commission.

191. All municipalities provided appropriate storage for questionnaires after the enumeration, including video and/or police surveillance.

ENUMERATION OF CITIZENS LIVING ABROAD

192. The census law, in its chapter 5, makes provisions for the enumeration of citizens of Bosnia and Herzegovina, who live abroad but have a place of residence in BiH and have been absent from BiH for more than 12 months. The enumeration of these persons was done using a separate form, published and available on the web site of the BHAS for download. The persons should send completed forms by mail, with return receipt request, to the address of the BHAS.

193. BHAS in cooperation with FOS and RSIS prepared the questionnaire and methodology/instructions for organisation of the enumeration of the BiH citizens working or residing abroad for more than 12 months in compliance with Article 40-42 in the BiH Census Law. A final version of the questionnaire and Instructions was agreed and finalized in mid-May 2013.

194. The questionnaire was available on the BHAS Census Portal in the period of 15-30 September 2013. All BiH citizens working or residing abroad for more than 12 months, who were willing to participate, could download, print and fill the questionnaire. The filled questionnaires should be sent to BHAS by 15 October 2013.

Assessment during the census process

195. This operation was not given proper attention and revealed to be a failure, in particular due to the lack of communication to the citizens living abroad. At the time of the last mission of the SC, questionnaires collected from this operation were not processed.

Main recommendations provided during the census process and their evaluation

196. The SC made regular recommendations to give special attention to this operation, which was supposed to avoid having citizens living abroad enumerated through the census operation in BiH. In particular, the SC made recommendations to develop pro-active communication targeting citizens living abroad, using the network of embassies and consulates via the Ministry of Foreign Affairs. This recommendation was not implemented and citizens living abroad were not properly informed. In the absence of official communication, some unofficial campaigns could develop to encourage citizens living abroad to be part of the census enumeration in the country, misinforming them about the risks to lose properties or citizenship in case they would not be part of the census enumeration in the country.

Final assessment and recommendations for the next census

197. In a country like Bosnia and Herzegovina, with a large diaspora, people who live abroad still keep strong links with the motherland. For most people, the census is understood as the enumeration of citizens, and not of the population residing currently in the country, regardless of their citizenship. It is therefore of utmost importance to ensure that the census is limited to the enumeration of resident population, while not giving the impression to citizens living abroad that they do not count. A specific operation targeting the diaspora is necessary to achieve these two objectives. For the next census, it is highly recommended to include a special operation allowing all citizens living abroad to be part of the operation, while ensuring that they are not counted in the resident population.

OVERALL EVALUATION OF THE ENUMERATION

198. From census observation, the SC considered that despite some external pressure, the census enumeration was carried out smoothly and in accordance with the international standards. During the enumeration some cases of wrong enumeration of non-residents as usual residents (especially people living abroad) were observed that could cause possible over-counting of persons. As expected over-counting of persons was recorded and estimated with the PES (see below). In addition, a number of erroneous inclusions were detected and corrected during the editing phase.

COMMUNICATION

199. It was clear from the first mission of the SC that a census in a country like BiH the census would risk being politicised by political parties or interest groups. The largest political parties had agreed to support the implementation of the census and the staff from the three statistical institutes were confident that it would not be cancelled as only minor parties were against and that only minor problems with participation could be a consequence of social dissatisfaction. The statistical institutes were well aware of the need for an intense campaign on the enumeration process in the weeks leading up to the census. However, the SIs did not foresee a long-term communication and outreach activity and had not carried out any survey or analysis to register the public attitudes to the upcoming census, and had not carried out focus group interviews with Civil Society Organisations (CSO) that potentially could play a role before and during the census.

200. The main lesson learned from the pilot census was that almost all media coverage concerned issues related to the three sensitive questions on ethnicity/nationality, religion and language; and the SC was convinced that a comprehensive communication and outreach would be necessary to build awareness about the technical character of a census and its benefits to society. During the next mission, it was possible to conduct a small focus group interview with local CSOs that all were aware of the importance and potential political use of the three sensitive questions, and confirmed the need for a comprehensive communication and outreach strategy. One CSO planned a national campaign to inform people about their right to refrain from answering any of the three sensitive questions and if they decide to answer then to describe themselves exactly as they preferred. This was allegedly to get a large diversity in possible answers and avoid that politicians strengthen divisions across the ethnic, religious and linguistic lines and splitting the country in three groups. Another CSO campaigned to avoid what they called a split in numbers among Bosniaks if they declared themselves Bosnians, Bosniaks, and Muslims and instead, to advocate for declaring themselves as Bosniaks.

201. The International Recommendations (CES 2010) indicate that the three sensitive questions should remain open and self-declared for people to answer and it was a clear rec-

ommendation from SC to underline this towards the public – also because some enumerators during the pilot census had put pressure on people to answer these questions within particular groups. No survey of people's attitudes towards the Census had been carried out in spite of the recommendations from SC. However, it was already at this point clear that there would be a need for a long term strategic communication and advocacy strategy that should convince the population that a census would be a purely technical and statistical exercise that would be very useful for planning in society at local, regional and national levels. At the same time, the communication and outreach strategy should help avoid that anybody feels forced to answer within any particular group.

202. However, a communication and outreach strategy was drafted by an external expert, but without all three statistical institutes sufficiently involved. The draft strategy was never finalised and approved by the SIs, but in spite of this, 7 months before the field operation the SC expected that the communication and outreach activities would be implemented by the BHAS in cooperation with the entity statistical institutes. Due to the slow decision process the SC recommended to proceed directly to implementation of activities that were in line with the draft strategy. The SC also recommended that the BHAS should hire a spokesperson.

203. One month later the SIs were strongly attacked from different ethnically based interest groups and political parties because of the open sensitive questions, which were seen as an attempt to split the different ethnic groups. The credibility of the census operation was at risk and there was still no rapid reactive or proactive communication from neither BHAS nor the entity statistical institutes, and consequently the door was left wide open for people to criticise and attempt to influence the census operations. No systematic monitoring of media, no outreach to civil society organisations and local authorities had taken place, no crisis communication unit had been established in the BHAS and no plan for how to do it and how to carry out communication activities were developed. At the same time the seemingly political agreement to support the census operation was weakening, and local civil society organisations complained that the BHAS was unresponsive and not actively communicating through the media.

204. Finally, a small crisis communication unit was established but all decisions concerning communication were taken very slowly. NGOs took up the responsibility to communicate and advocate for people to declare their ethnic/religious/linguistic belongings as free and diverse as possible but others encouraged people to let their answers fall within the three constitutional people. Two months before the field operations an agency was employed to conduct the extensive PR campaign right before and during the enumeration. Besides the more traditional issues as informing about the practical enumeration in order to facilitate a quicker and easier process, the SC also recommended to communicate around two messages: (i) participation in the census does not imply that any personal information is provided to tax authorities or power supplies; (ii) that nobody living outside BiH risks losing their passport, property or any other rights if they do not take part in the census, as being residents in other countries. A possibility for people resident abroad to register outside and in parallel with the census was not sufficient clearly communicated.

205. Towards the end of the field operations, the SC found that very few people refused to take part in the census and the enumeration in the field ran smoothly. This was an indicator that the PR campaign might have been successful in informing about the enumeration process, but the over count observed during the enumeration and later confirmed by the results of the PES indicated that the external campaigns encouraging people to travel from other countries to BiH to take part in the census for one or another reason had been also successful.

206. A year after the field operation the contours of critical issues during the data processing phase were expected to appear and would have to be dealt with through strategic communication. Among these issues was the procedure used to implement the definition of resident population. After strong and consistent recommendations from the IMO, the BHAS had finally strengthened its information and public relation capacity and the staff working with communication kept a close relationship with the technical staff in order to be prepared to proactively communicate on any critical issues. The key dissemination channel would be the census website and strategies for handling the media were developed. However, shortly after, the BHAS was left without management. There was no progress in data handling and methodological disagreements between the statistical institutes became increasingly clear and the dissemination and communication with the media stopped. This situation continued another year.

207. By the end of 2015, a new management was appointed in the BHAS and the legal deadline for dissemination of results, by 1st of July 2016 was approaching. The media focused their attention on the figures related to the distribution of the population by ethnic affiliation. In the media, public disputes between RSIS and the BHAS as well as between the managers inside the BHAS began. The communication staff prepared data based communication but all issues related to ethnicity and religion had to be answered by the director of BHAS and in his absence, by one of the deputy directors, resulting in conflicting attitudes communicated to the media. By a decision taken by the director of the BHAS all data were published on the 30th of June but contested by the RSIS and a deputy director in BHAS. The communication staff by the end of the IMO-missions is left with a huge challenge in responding to internal sources questioning the validity of the data.

Assessment during the census process

208. A number of institutional and political challenges were faced by the communication work and its team of professionals. Before the field operations and in the following year there was very little understanding in the management of the BHAS of the importance of proactive and fast communication with the media. Too few resources were allocated and the Director offered too little personal participation in the media. The census law provided that the BHAS was responsible for the external communication. This prevented the entity SIs from taking the real lead in public communication and as a communication group for all three institutes was established late and only met few times, it hampered significantly the active participation in media relations and communication actions.

209. Furthermore, there was a general lack of awareness of the need for strategic communication and only focus on the final weeks of extensive public relations campaign ensuring that the public was aware of the dates and processes during the enumeration. On one side it was rooted in traditions and on the other side probably reflected an uncertainty about how to tackle a strongly politicised environment seeking to make all technical data and processes of the census a question about politics and ethnic and religious percentages. To communicate in such an environment demanded courage in the management and active and consequent support to the communication staff, which first of all should be qualified in strategic communication aiming to influence attitudes and actions of the people.

210. Even when an external company provided TA to develop a communication and outreach strategy and plan, the decision processes across the three SIs was so slow that there was never a final and agreed strategy, similarly to what happened to all other processes regarding logos and other communication material.

211. It is very clear that the political context of BiH and the lack of interest of the management has placed the persons responsible for communication in the BHAS in an almost impossible situation. Add to this the fact that three statistical institutes have to agree on several significant decisions about communication and it becomes clear how difficult it is to communicate effectively.

Main recommendations provided during the census process and their evaluation

212. The IMO has since the first missions recommended to identify the attitudes and opinions of the population towards the census and the statistical institutes, and has recommended as quickly as possible to develop a communication and outreach strategy as well as an action plan for communication activities. Furthermore the IMO recommended more resources to this area and a very proactive role of the BHAS in avoiding that alternative political agendas shadowed and distorted the technical nature of the census.

213. Good and precisely targeted communication before the enumeration process most probably could have played a significant role in improving the basic data of the census – particularly in convincing people resident outside the country that there was no reason to come to BiH. The registered over count of people and the doubt about their residential status might in this case have been reduced.

214. It illustrates very well that in countries with high risk of politicising the census operations it is necessary to be prepared to carry out communication and outreach strategies long time in advance of the field operations. It will often be important to reduce a threat of possible boycotts, mistrust in the political independence of the statistical institute, focus on ethnicity and the census results' possible consequences for personal rights.

Final assessment and recommendations for the next census

215. To grasp the atmosphere and the attitudes towards the census it can be a big advantage to conduct a systematic quantitative survey as well as focus group interviews with civil society organisations. On this basis a precise communication and outreach strategy should be developed.

216. It is further important to repeat such focus group interviews in order to have continuous feed backs from representatives of the public about the perception of the communication activities of the statistical institution and when relevant to have civil society organisations as partners in creating support for the census operation.

217. While communication strategies mainly use traditional and social media to influence attitudes it is also important to build understanding and support through meeting trusted multipliers and opinion makers as intellectuals, religious, political and social figures that each have a high credibility with groups of the population. Such outreach can be a very important factor helping to add credibility to the messages in the media.

218. For BiH it is particularly important in the future to have a uniform and coherent communication and an organisation behind that allows quick decisions and makes full use of both the BHAS and the two entity statistical institutes in effective communication actions.

DATA PROCESSING

219. After questionnaires were collected, the next phase was data processing. It consists of the following steps:

- Data capture of the questionnaire to an electronic form
- Coding of selected questions with specific classifications
- Editing of inconsistencies and missing values
- Construction of a central database for dissemination

220. According to the Census Law, the BHAS was responsible for defining the specifications of the data processing phase.

PROCESSING CENTRE AND STAFF

221. The procurement to select the premises for the census data processing was finalized on time. In the opinion of the SC the selected place fulfilled the conditions for the storage and the processing of the census materials, including security: a private guard controlled access 24 hours a day; the access to the archive room was limited to the archivists and the door of the archive opened with fingerprint recognition. The space was well distributed and had separate places for the archive, the central servers, the scanning preparation, the scanning equipment, and for the completion operators.

222. The recruitment of the data processing staff was completed by the end of January 2014. The three statistical Institutes selected jointly a short list of 500 persons out of 5.000 applications. Nevertheless, the final selection of the 298 persons employed was performed by the BHAS with some complaints from RSIS on lack of transparency on the selection criteria, whereas FOS expressed its satisfaction regarding this process. It should be noted that the selected personnel respect the ethnic group distribution agreed by the three Institutes.

223. Specific manuals and training materials were prepared for the different actors involved in the data capture phase: scanner operators, completion operators, supervisors and coders. These materials were the basis for training the different actors involved in the data capture phase, which started at the end of January 2014 and lasted for about 5 days.

224. At the beginning of the data capture phase, 298 persons worked in two shifts of seven hours each. 160 persons were assigned to the manual preparation of the census materials (80 teams of 2 persons), 6 persons to the scanning operation, and 60 persons to the manual entering of EA control forms (P3) and the remaining 72 persons for OCR activities.

225. The data processing started at the beginning of February 2014, but limited to manual preparation, scanning and manual entering of the EA control forms. After the finalisation of the manual data preparation the number of contracted staff was decreased to 155 persons.

DATA CAPTURE

226. Data capture was performed from February 2014 to October 2015 using the e-flow platform. The development of the e-flow platform was completely outsourced and developed on the base of the pilot census questionnaires. The e-flow platform worked in the following way:

- Once the questionnaires were scanned, the images were first organized in collections (a set of 50 forms pertaining to the same alphabet) and passed to an IMR/ICR engine that attempts to recognize the contents of the answers;
- Next step was the tile phase in which the images of all the numbers in the collection were presented to an operator according to their current recognized value. If a value appeared in the wrong group, operators could easily mark it for corrections.
- Fuzzy match was then used to attribute a specific confidence value to the interpretation of each character. Depending on the confidence of the recognition process the engine either accepted the inferred result or rejected it;
- Next phase was the completion in which the fields containing values selected in tile phase or having a low fuzzy match index were manually verified by images. In this phase fields that did not respect the validation rules were also verified by images;
- Last step in the e-flow platform was the supervision phase in which a specialized operator tried to solve some of the logical inconsistency following some pre-determined rules.
- Finally, the data were exported to an SQL Server database.

227. In addition to the above phases, a parallel process was in place for quality assurance. During this process, a selected group of operators re-processed a fixed percentage of the questionnaires. Indicators about the differences between the exported and the re-process data were used to evaluate the quality of the single users as well as the quality of the whole capturing phase.

228. An alternative data entry system was developed with the support of the technical assistance to process those questionnaires that were damaged or not properly recognized by the Data Capture System.

229. During its visits to the data processing centre, the SC performed a quality assessment on a number of captured questionnaires. Several questionnaires, randomly selected, were compared with their corresponding raw data stored in the Census database after having successfully passed all the phases of data capture and after their final checks and validation. The quality assessment confirmed that the whole data capturing process was well organized and produced data of a high standard of quality.

230. In addition, an inspection of the Census database log was performed to verify that no un-authorised operations were performed on the acquired data. This inspection reviewed all the queries launched on the database in the previous three months and verified that no suspicious operations - like deletion, un-authorised modification or alteration of values - took place in the previous three months.

CODING PHASE

231. A global strategy was developed prior to the data capture phase to perform the coding of the three main international classifications adopted for the census: ISCO for occupation, NACE for economic activity and ISCED for educational attainment. An ad-hoc application

called g-Code was developed to approach these issues. The coding of Municipality, Settlement, Country, Citizenship, Ethnicity, Religion and Mother tongue were also performed with the g-code application. In average 10 coders were working on each variable and specialised experts from the three statistical institutes were working for coding occupation and activity.

232. The coding operations of the geographic identifiers started in July 2015 using the g-code application but soon the three institutions realized that the application was time consuming and decided to periodically export the data to be coded in Excel and to hire additional coders controlled by their staff. The statistical institutes also realized that municipality should have been coded together with settlement due to frequent mistakes of enumerators in filling the questionnaires. So at the end, the coding operations of the geographic identifiers took place separately from the database and in a semi-automated way.

233. Coding of the countries was done in accordance with UN code list - Standard Country or Area Codes for Statistical Use. All the records that have any connections with Kosovo under UNSCR 1244/99 were coded with code 950. All the records that could not be identified were coded with 999 (unknown).

234. Coding of the occupation was performed in accordance with the ISCO-08 classification with four digits. The coding operations started in July 2014 with a thesaurus of 11.385 cases, mainly coming from the last available Labour Force Survey. At the end of the operations 70.1% of the cases were automatically coded. The process of coding was completed by the end of December 2015.

235. Coding of the industry was performed in accordance with NACE-rev 2.0 with two digits. The coding operations started in July 2015 with a thesaurus mainly derived from the Labour Force Survey. The cases that were not automatically coded were first attempted to be coded on the basis of the activity description and, if not possible, by searching for the company name in the business register or in other administrative registers. The total amount of descriptions automatically coded was 37.9%.

236. Following the recommendations of the SC, the three statistical institutes performed an assessment of the quality of the coding process on sample bases. The SC review and verified this assessments confirming that the coding was performed with a good level of quality for geographical identifiers and occupation and with a reasonable quality for industry.

237. For the sensitive questions ethnicity, religion and mother tongue the coding operations of the descriptions started in November 2014 and ended in February 2015, without proceeding to any aggregation of the answers other than orthographic or masculine/feminine variants of the same words.

DETERMINATION OF THE RESIDENT POPULATION

238. In November 2014 five sets of rules defined to identify the resident population were tested on a 10% sample of the total individual records and the results were shared with the SC. The SC asked to apply the five sets of rules on the complete database of individual records and was informed that the same request was already presented by the working team one month before but that the working team was not authorized to implement it. The SC obtained the authorization from the three directors and received the results before the end of the mission.

239. Once applied to the whole database of individual records, the five sets of rules defined to identify the resident population showed insignificant differences in the distribution of the

variable RES, except for two of them: the simplest set of rules, that consider only Q1-Q7, and the most complex one, that consider Q1-Q7, Q12, Q31, Q40 and RHH (Relation to the Head of the Household). Indeed, moving from the simplest set of rules to the most complex one produced a decrease of the usual resident (-1.55%), of the usual resident but temporary absent (-0.11%), of the not usual resident (-0.12%) and an increase of the undetermined population (+1.78%). Moreover, the number of rules considered in the two sets increases from 29 for the simplest one to 46 for the most complex one. It remained a class of people, from 5.7% to 7.4 %, that could not be clearly determined as resident or not resident. In November 2014, the IMO made a recommendation concerning which set of rules should be applied to identify the resident population. The SC, following the principle of parsimony (*lex parsimoniae*), recommended to adopt the simplest set of rules that consider only Q1-Q7 (29 rules). In addition, the SC stressed the importance that the set of rules should be easy to explain and defend and that any additional unnecessary complication should be avoided. In June 2015, the Chair of the Management Group of the IMO sent an official letter to the Chairman of the Council of Ministers of Bosnia and Herzegovina to formally recommend a methodology for the determination of the resident population based on the recommendation of the SC.

240. In May 2016, the Director of BHAS convened a press conference to inform the media that, despite not having reached an agreement with RSIS, he decided to implement the IMO recommendations to adopt the simplest set of rules that consider only Q1-Q7 and the 29 rules based on them.

241. The implementation of the procedure for the determination of the resident population produced the following results:

Table 4 - Comparison enumerated population - resident population

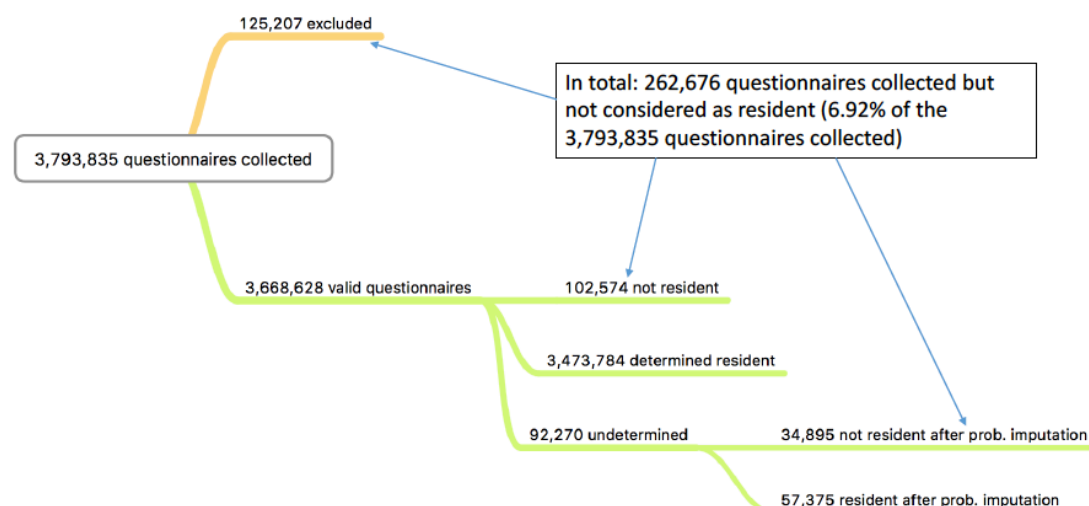
	Enumerated Population	Resident Population	Difference	
			Absolute	%
BiH	3.791.622	3.531.159	260.463	6,9
FBIH	2.371.603	2.219.220	152.383	6,4
RS	1.326.991	1.228.423	98.568	7,4
DB	93.028	83.516	9.512	10,2

Source: BHAS, Census 2013

242. In total, 260,463 enumerated persons were not considered as resident by the procedure, representing 6.9% of the enumerated population. The following figure shows the application of the procedure in detail:

Figure 2 - Determination of the resident population

Determination of the resident status – BiH Census



EDITING PROCEDURE

243. The P1 questionnaires collected the information on the individual characteristics of the population of BiH. The variables considered during the data editing of the individual data were those from 8 to 46, since the first seven questions have been treated when the resident status was determined. Different sequential phases were used to edit the variables:

- a first step considered an inter-record approach, in which the consistence was checked by considering the information of all household members. In particular, this approach was implemented by reconstructing the structure of each family nucleus, taking into account the compatibility of the parents-children ages, verifying the presence of just one head of the household, the relation with the head of the household, etc. Obviously, this step was not applicable to individuals living in institutional households;
- the second step considered the Fellegi-Holt (FH) methodology to verify the general coherence of the answers and to identify the most proper value to impute, if needed, the wrong or missing answer;
- a series of deterministic rules (based on if/then conditions) were applied on certain variables because their corrections could consider some systematic errors. Such rules were developed by the thematic experts that verified the distribution of the original variables in the raw data base and their joint relation. As an example it is possible to consider the case in which, answering to the question *has the person arrived to the place of census from another place*, the respondents answered *no*, while the place in which their mother resided at the moment of their birth was different;
- a new repetition of the inter-record approach, executed to correct all those relations inside the nuclei that remained not determined. This because all the previous steps permitted to finally impute all the missing values and were able to correct all the ages.

244. Not all the variables were considered and/or edited in each phase of the strategy above described. For example, the relation inside the nuclei was treated only in the inter-records ap-

proach; the age in the first two steps, while in the third and in the last it was used as a reference to better identify the inconsistencies in the other variables. Moreover, the treatment of the missing values was done by considering the related rules defined according to the questionnaire; in fact, there are questions that required to be answered only by groups of the population, while other were mandatory for all the persons.

245. The P2 questionnaires collected the information on the characteristics of the buildings, dwellings, households and some agricultural data about the land owned by them. For what concerns the characteristics of the buildings and dwellings, the editing activities mainly had to deal with the necessity to take into account the cases in which different answers were collected for the dwellings in the same building, or with missing values. To solve such inconsistencies, a “top-down” correction strategy was adopted, based on a series of procedures specifically developed. In detail, a three-step approach was developed, based on the following concepts:

- Identify coherent values for the buildings;
- Use of the previously identified values to eventually correct the errors in the dwellings;
- Check and correct the households’ information by means of the logical relations between the dwellings in the same building.

246. The procedure implemented to treat the inconsistencies in the buildings considered the following variables:

- *Year of construction*: in case of discordant answers among the dwellings of the same building, it was used the most common and ancient year. This because it was observed that these cases often represent situations in which a specific floor may have been added years later. Whenever it was not possible to correct the record, it was considered the most frequent value observed in the same enumeration area;
- *Number of floors*: in case of errors the distribution of the floors of the different dwellings was used in order to identify, if possible, the highest value. Whenever the record resulted still not corrected, it was considered the most frequent value derived by considering the same enumeration area;
- *Lift in the building*: it was verified if the related building had more than one floor otherwise, the lift was considered not present. In a second step, the presence of the lift was confirmed, or not, by considering the answers given by the households living in the higher floors. Also in this case, if the record resulted still not corrected, it was considered the most frequent value derived by considering the same enumeration area;
- *Material used for the construction of the building, Material used for the construction of the roof, Accessibility to the building, State of repair of the building*: all the inconsistencies were treated by considering a donor derived by considering the most frequent value for the same enumeration area.

247. To identify a valid range of admissible values between the floor space and the number of rooms, their ratio was calculated and the range “greater than 4 but less than 150” was applied. Furthermore, the kitchen area was considered valid if less than 1.5 times the floor space and 20 was the maximum number of rooms allowed. Finally, to correct the number of floors, it was used a value defined in the range permitted by those already identified when treated the information on the building.

248. The last step of editing the P2 data referred to the household information. The considered variables were:

- Type of heating of the dwelling unit;

- Main type of energy used for heating of the dwelling units;
- Potable water supply system.

249. The cases that were solved referred just to those with missing value. To do so was developed a kind of hot-deck imputation based on the same enumeration area and the previously corrected information on the presence of a bathroom, the water supply system, the presence of electricity, of natural gas and of the central heating.

250. To assess the impact of data editing the practice consists in comparing the initial set of raw data with the set of correct and coherent data obtained applying the whole editing procedure. In order to allow this assessment, indicators at aggregate level, which take into account the changes produced in terms of number and/or magnitude, have been considered. These sets of indicators were calculated on the three data sets object of the examination: dwellings, households and individuals. In order to perform a more detailed assessment, indicators at item's level, which take into account the changes produced in terms of modification of the initial values and the degree of changes induced on the distributions of the items, have been considered.

251. The SC during its missions reviewed the editing procedures, the rules applied for correcting the data as well as the editing indicators. The opinion of the SC is that the editing procedure was fine, even if a bit complex, as the combination of probabilistic methods in a context of some resistance and preference for deterministic rules. The SC observed that the TA managed to combine those approaches in a correct way. In terms of rates of imputation and similarity of the distributions before/after the application of the editing procedure, the results are generally fine with the exception of few items for which valid explanations were provided.

CENSUS DATABASES

252. A series of Census databases are available at the processing centre since in each phase of the data processing a copy of the database was made. The access to these databases is limited to the database administrators and monitored by the software CyberArk. This software permit to access to the databases through an html browser and record everything is done during each session.

253. The SC has performed a series of inspections on the Census databases to verify that:

- all the personal information like name, surname, name of father, address, etc. was encrypted in all the databases.
- the three sensitive questions were not altered by the editing procedure and were identical in the *raw* and *final* databases;
- both the provided indicators at global and item's level were correctly calculated;
- dwellings pertaining to the same building presented the same value for each of the building items;
- the official tables already published were correctly calculated;
- the *pes* database was not carrying any information about the three sensitive questions;
- the PES figures on which the Latent Class Model was built were consistent with what reported.

254. The results of these inspections showed the consistence between the values calculated on the databases and what reported to the SC (or published) and no misuse of the census data.

Main recommendations provided during the census process and their evaluation

255. For the purpose of monitoring the correctness of the whole data capturing phase, the SC recommended that after each stage of the main e-flow platform (recognition, completion, supervision) and after each of the successive data processing phases (codification, definition of the resident population, editing) a backup of the census database should be taken. This recommendation was implemented creating a copy of the census database at the end of each phase of the data processing.

256. In September 2013 the SC urged the three statistical institutes to develop a comprehensive strategy to ensure no risk of disclosure or misuse of Personal names and potentially sensitive information during and after data processing. It also underlined that if no satisfactory strategy would have been produced, the SC would strongly recommend not acquiring any personal information (Name, Surname, Father Name, Address, Personal identification number) during the scanning phase. In December 2013 the BHAS presented a document proposing:

- Only the e-flow platform could access to the images collections that would not be accessible directly by the operators. At the end of the e-flow process of a specific EA both the tiff and jpeg images generated by the scanning should be encrypted while the original files would be deleted.
- All the Census applications should encrypt personal data when writing them to the Census database. This encryption will be performed with a key known only to application, not stored in database. Such solution should prevent access to personal data in database from System administrators and any other users.
- The proposal of the BHAS to avoid any alteration of data in the Census database was to prevent any changes to the database not made through an application, and if not prevented, then discover them. For this purpose, the Census database should log all changes to a location where database administrator cannot alter them.

257. The SC found the solutions proposed by the BHAS efficient and adequate, but strongly recommend that at the end of the data processing the images would be destroyed and the personal data removed from the Census database.

258. Due to their sensitivity, the SC suggested to record all the answers on the ethnicity, religion and mother tongue questions without any other aggregation than grammatical variations like adjective/noun, or masculine/feminine form. The recommendation was fully implemented.

259. The SC suggested that a modern approach to IMR/ICR should include the localization and the verification of the main inconsistencies but only with the purpose of correcting mistakes of the recognition process, and not with the objective of solving inconsistencies that exist in the paper questionnaires. These inconsistencies have to be solved in the editing phase. Indeed, controls to make sure that the capture is accurate are in the scope of data capture, but the role of data capture is not to correct inconsistencies that are already in the questionnaire. The recommendation was implemented and any possibility of correcting inconsistencies was removed from the e-flow platform.

260. Whereas the SC approved the e-flow platform designed for data capture, it made some recommendations to ensure that the processing of census data would be carried out in conformity with international standards:

- Use the codebook of Municipality, Settlement and Country only to validate the data coming from OCR. Avoid any kind of auto-competition or codebook use in the completion phase;
- Avoid defining any kind of codebook for the textbox of the three sensitive items Ethnicity, Religion and Mother Tongue. In completion phase only the characters unrecognized or misinterpreted by the OCR engine were corrected.
- Limiting the supervisor phase to: id codes inconsistencies; field out of range; multiple checks when only one was needed; Municipalities, Settlement and Country not in codebook.

261. These recommendations were all endorsed by the three statistical institutes. However, delays in the implementation of the recommendations were observed due to the fact that the company in charge of the e-flow platform development requested an extension of its contract because the census was postponed of 6 months.

262. During the manual preparation of the census materials for the data capture, the SC recommended not to perform any manual modification on the paper questionnaires. The recommendation was fully respected, and the census data captured entirely reflects the data collected during the enumeration.

263. After the end of the coding phase the SC recommended to perform an assessment of the quality of the coding process on sample bases. The recommendation was fully implemented and the SC has the opportunity to review and verify it, confirming that the coding was performed with a good level of quality for geographical identifiers and occupation and with a reasonable quality for industry.

264. Concerning which set of rules apply to identify the resident population, in November 2014 the SC, following the principle of parsimony, recommended to adopt the simplest set of rules that consider only Q1-Q7 and the 29 rules based on them. The SC underlined that the set of rules has to be easy to explain and that any additional unnecessary complication should have been avoided. The SC also underlined that the non-agreement between the three Statistical Institutes on the criteria to be adopted for determining the usual resident status was provoking serious delay. Indeed, in February 2016 the data processing phase was still blocked by the absence of decision on the rules to be adopted for the determination of the resident population, which prevented from completing the editing phase and the database for dissemination. At that time, the data processing team had developed the set of rules recommended by the IMO, but their implementation was not yet approved by the Census Central Committee. In May 2016 the Director of BHAS convened a press conference to inform the media that he has decided to implement the IMO recommendations, despite not having reached an agreement with RSIS and officially adopted the Unified Data Processing Program that reflected the suggestion of the SC on the rules to be applied to identify the resident population.

Final assessment and recommendations for the next census

265. Overall, the SC considers that data processing activities of the 2013 population and housing census of BiH have been satisfactory in comparison with international standards and best practices. With the exception of some marginal aspects, the method of data capture and the methodology used for data editing were quite modern and in line with international standards.

266. Having had the opportunity to work directly on the data, the SC noted that the structure of the final census database is not really optimized, does not take fully advantage of the use of a relational database and that a series of derived variables are still missing from it.

Moreover, personal information is still available, even if encrypted. The production of a more optimized database with no reference to personal information is strongly recommended

267. Imaging techniques and scanner devices, together with OMR/ICR software, have been used for the Census data capture. Experience showed that significantly low error rates were achieved using these techniques. The efficiency was more evident in case of numerical and alphanumeric characters written by trained enumerators. However, alphanumeric characters were proved to be more prone to higher error rates. Extensive testing has been conducted well in advance to determine the best type of equipment and paper and it was necessary to heed special questionnaire design restrictions as well as adhere to precise specifications regarding the printing and cutting of the sheets. Verification of the data acquired was another time-consuming phase of the process. Nevertheless, for the preparation of the next census of the 2020 round, the SC recommends that BHAS would take in consideration the collection of the data using an electronic questionnaire on smart phones, tablets, laptops or other handheld devices. Electronic forms can provide improved data quality and operational efficiencies by implementing validation rules on individual questions, cross validation between questions, automatic questionnaire patterns and more options in pull-down lists. Electronic questionnaires can give access to guidelines, help material and even videos to provide instruction to the interviewer. Each device can be linked with the enumeration area so that the records are tagged with the respective enumeration area to avoid duplication. The device may also be able to capture information on the location of the interview, time of day and other metrics that may be useful.

EVALUATION - POST ENUMERATION SURVEY

268. According to the census law, the Post Enumeration Survey (PES) was conducted to evaluate the census coverage and the quality of census data. The working group consisting of members from BHAS, FOS and RSIS was established for developing the PES methodology, organizing the field operation, implementation of data processing and analysis of the PES results.

269. In order to ensure that the PES is an independent operation from the census, the responsibility of carrying out the PES activities was given to the Department of Statistical Methodology, Standards, Planning, Quality and Coordination. The PES team responsible for all activities from planning to dissemination of the results was not actively involved in the census operation.

270. The main objective of the PES was to evaluate the coverage errors (omissions or duplicates) of the units of enumeration (persons, dwellings and households) and errors in answers (content errors) on the basis of selected number of questions. For that purpose, the PES was designed in two parts: coverage control and content control to facilitate analysis of coverage and content errors.

PES PREPARATIONS

271. The PES questionnaire was designed based on the final questionnaire for application of dual system estimation methodology. The draft PES questionnaire was tested during the pilot census which allowed also to test the PES instructions and field organization.

272. The PES sample size was 1% of the total enumeration areas to provide reliable estimation at the level of entities and the Brčko District. The overall PES sample included 240

enumeration areas (84 in the Republica Srpska, 141 in the Federation of BiH and 15 in the Brčko District) randomly selected from total of 24,322 enumeration areas.

273. Coverage control was carried out on a single stage stratified sample of EAs as primary sampling units. Allocation of EAs within each stratum was performed proportionally to the number of households per stratum. For the estimation of content errors, the secondary sampling units were selected systematically within each EA selected at the first stage. If the total number of estimated households in the EA was higher than or equal to 50, the content control was carried out for every tenth household, starting with the household with ordinary number 1 in the Control Book. If it was less than 50, 5 or 6 households were selected for content control depending on the size of EA.

274. The same Municipal Census Commissions (MCCs) that were established for Census were used for PES. MCCs were well aware about the necessity of conducting independent operation therefore not being involved in the field operation and perform only their assigned responsibilities in providing logistical support. The selection and appointment of municipal instructors and controllers was done by BHAS, without any interference of the MCCs and was finalized on time before the beginning of the PES. All selected municipal instructors and controllers were already involved in the census. To respect the principle of independence between the census and the PES, no PES controllers or municipal instructors were assigned in another EA than the one(s) they were engaged as enumerator or municipal instructor during the Census. They were selected among the best performing staff in the Census. The number of municipal instructors, controllers and state instructors was adequate. All staff participating in the PES was trained.

275. All PES materials (PES questionnaires, maps, instructions) and stationeries were supplied on time and in enough copies. The number of PES questionnaires in the municipalities in all the relevant languages as well as in Latin and Cyrillic script was almost sufficient before the first day of the PES. Only a few cases of shortage of questionnaires in a particular language were reported.

276. The MCCs provided all logistical support for the PES operation, including offices for working and premises for storage of PES materials. The premises provided were generally the same provided for the Census, although with very different quality, but at disposal of participants all day long.

PES DATA COLLECTION

277. The PES field data collection was carried out on time as scheduled from 2 to 10 November 2013 all over the country. The field work started after collecting all census materials including the completed questionnaire from the field. To assess the PES data collection, a team of 5 IMO observers was deployed in the country in 4 observation zones. The team was composed of international experts, or provided by National Statistical Offices of EU Member States or independent experts. All 5 observers had experience as census observers, and 4 of them were observers of the BiH Census enumeration. For the PES they were assigned to other regions than the one they observed in the Census.

278. The role of the observers was the same as in the Census: (a) to monitor the collection of PES data and observing that it was carried out in accordance with the requirements of the census legislation, PES Methodology and international standards; (b) to check whether the counting at all levels was in conformity with the statistical standards and whether the confidential nature of the individual data was fully safeguarded; and (c) to monitor the work of the

controllers, municipal, state and entity instructors, and members of MCCs, in as much detail and in as many areas as possible.

279. The observers visited 89 EAs (or 37% out of 240 EAs selected for the PES) in 61 municipalities (or 57% out of 107 municipalities selected for the PES) and observed 164 interviews (123 for coverage and 40 for content control).

280. The PES field enumeration was carried out in a positive and good atmosphere. BHAS took the full responsibility for its conduct and in general the PES was carried out without any external pressure. All involved parties, Municipal Census Commissions, state, entity and municipal instructors as well controllers contributed to such an atmosphere with professionalism. The population was very cooperative and willing to participate. Almost no (or just insignificant) refusals were reported. Both controllers and municipal instructors were always welcomed in the interviewed households. There were no reports of observers and their interpreter not being allowed to enter a household and to follow the interview.

281. The official information about PES was communicated to the public through radio or TV (campaign and/or news). As soon as they were informed, municipalities selected in the PES sample gave information to the local media and some had put the information on their web site. Unofficial campaigns (as observed prior and during the Census) were not noted. The level of information of the population about PES was very diverse. Some observers reported that most of the visited households were informed about the PES, some reported that about half of visited households were informed and some reported that almost all visited households were not aware about the PES at all.

282. The controllers, with very rare exceptions, provided good performance both in terms of quality and timeliness. Most of them even finished earlier than planned including several checks of the material. The municipal instructors observed controllers in the households as well as controlled the filled questionnaires. In cases only one EA had been selected in the municipality for the PES, the municipal instructor accompanied the controller in their work most of the time. State instructors were controlling the filled questionnaires on a sample base while paying field visits.

283. As in the census, materials (PES questionnaires, maps, instructions and others) were kept until the end of the PES by a person in charge of data collection. Completed questionnaires were carefully kept by the controllers until the end of enumeration. At the end of the fieldwork the materials were thoroughly checked by municipality instructors together with controllers and safely kept in municipal premises until these were passed over to the state instructors. The filled PES questionnaires were sealed and all other PES materials were packed and prepared for transportation according to the instructions. The collection and transportation of the PES materials to the data processing centre in Sarajevo was carried out on 15 and 16 November 2013 (as scheduled in PES activity plan).

PES DATA PROCESSING

284. After completion of the fieldwork for the PES, the questionnaires and other documents were stored in the data processing centre. The PES team, composed of technical staff from the three Statistical Institutions (SIs) prepared the manuals and instructions for data capture and matching procedures in accordance with the SC recommendations. The census questionnaires corresponding to the EAs sampled in the PES were captured in priority. The PES questionnaires were captured manually and completed by April-2014. In order to minimize data entry error, double data capture was performed. For ensuring independence, different

groups were captured the same questionnaires. After data capture, inconsistencies between two datasets were corrected by checking the paper questionnaire. The process was completed when two independently captured data sets were identical.

285. The first cycle of matching the PES records with the census records started in the beginning of July 2014 with the matching of the enumerated persons within the selected PES EAs and was completed in about three weeks. The analyses of the non-matched records, those enumerated in Census (in the selected EAs in the PES sample) and not found (enumerated) in the PES, showed that the majority of those persons were members of large households (15 to 20 members) and all household members were enumerated as absent abroad.

286. Matching the PES database with the census database was performed at the level of individuals, households and dwellings. According to the PES work plan, a final step would be reconciliation visits for final decision of non-matched cases. However, the BHAS decided to suppress this phase due to the substantial time lag –almost one year- after the PES enumeration and in order not to pose any problem on the reliability of census results as reconciliations visits were not explained in the census law.

287. For data processing, including data capture and matching operation, lots of time had been spent because of lack of organization and managerial decisions particularly for deciding matching procedures. More importantly, ineffective decision making mechanism regarding the finalisation of the rules for determining usual residence status and for inclusion/exclusion of some population groups had significantly delayed the implementation of PES activities.

288. After the finalisation of the rules for determining the usual residence status in May 2016, the PES team applied the same rules for determining residence status of persons enumerated in the PES. The final census database with the assigned residence status was then considered for matching the PES and the census records according to the residence status. Finally, resident from PES and the census in the PES enumeration areas were considered in the estimation of coverage error.

289. The SC noted the good collaboration among the PES team members and their professionalism in undertaking the activities. The PES team received support from external technical assistance in 2015 and 2016. The SC also appreciated the support of the experts and their effort for providing efficient technical assistance during data processing.

ESTIMATING COVERAGE AND CONTENT ERRORS

290. For the application of the Dual System Estimation (DSE), erroneous enumeration has to be determined for ensuring unbiased coverage estimation. As mentioned before, reconciliation visits in the field were not carried out. Because of the absence of reconciliation visits, the TA suggested to use a Latent Class Analysis to estimate the erroneous enumerations in the census. After testing the different models for identification of units belonging to the target population, the best model selected includes demographic characteristics of the population (age and sex) and a variable reporting the matching status of the household to which the person belongs (at least one member of the household was matched with a record of PES or no members of the household were matched with a record in PES).

291. Following the steps of the DSE, the true population and measurements of the census coverage were estimated. According to the results of the DSE, the estimated true population (household population) is 3,352,760. At the national level, the over coverage rate is estimated as 5.59 per cent and under-coverage rate is estimated as 1.24 per cent. The net over-

coverage at national level amounts to 4.61 per cent. According to the PES sampling design, estimates of coverage indicators were provided at the level of state, entity and by rural and urban (Table 5). Whereas the coverage is similar in the two entities, and a bit higher in urban areas than in rural areas, there is a high over-coverage in District Brčko (16.5 per cent).

Table 5 - Coverage rates at national, urban and rural levels, entity levels for individuals

	Urban	Rural	Federation of BiH	Republika Srpska	Brčko District	National
Over-coverage rate*	6.41%	5.07%	5.04%	6.03%	15.36%	5.59%
Under-coverage rate*	1.38%	1.15%	0.96%	1.79%	1.35%	1.24%
Population estimate	1,413,957	1,938,804	2,113,556	1,167,778	71,426	3,352,760
Net over-coverage Error rate**	5.34%	4.08%	4.28%	4.49%	16.51%	4.61%
Census omission rate**	1.42%	1.19%	0.98%	1.81%	1.38%	1.24%
Census erroneous inclusion rate**	6.76%	5.27%	5.26%	6.30%	17.89%	5.85%

Source: PES provisional report-BHAS. *: based on the census population **: based on the DSE Population estimate

292. The net over-coverage rate is higher for households, confirming that entire households were over-enumerated, which justifies the LCA model used for the estimation of erroneous census inclusion.

Table 6 - Coverage rates at national, urban and rural levels, entity levels for households

	Urban	Rural	Federation of BiH	Republika Srpska	Brčko District	National
Net over-coverage rate	7.21%	5.75 %	5.97 %	6.55 %	17.02%	6.41%

Source: PES provisional report-BHAS

293. The results of content errors indicate high quality of census data for most of population and housing characteristics with more than 90 % rate of agreement. There are few variables with the rate of agreement between 90% and 80% such as highest completed level of education, activity status and some housing characteristics such as tenure status and water supply system.

294. The PES report presenting detailed explanation for the methodology used for estimation of coverage indicators and the results was prepared by the PES team with assistance of consultants. This report also presents content errors for the variables included in the PES questionnaire.

295. The PES report including detail explanation for PES activities, PES methodology and the results of PES will be disseminated as a part of Quality Assessment Report.

296. The SC noted the good collaboration among the PES team members and their professionalism in performing the PES activities. The SC appreciated the support of the TA experts

and their effort for providing efficient technical assistance in a short time. The SC also appreciated the efforts for preparing the PES report providing the detail information on the methodology used for estimating coverage and content errors. It is a technical report targeting professional users of census data.

297. The SC considers that the PES methodology used for evaluation of the quality of census results is consistent with international standards and recommendations. The results in terms of coverage are consistent with what was observed during the enumeration by the IMO monitoring operation, and are in the usual range of coverage of censuses internationally.

298. Considering the difficulties in interpretation of the results of the PES particularly by general users, it was recommended to prepare communication strategies for the purpose of informing public about the main results of the PES and helping them to interpret the results.

Final assessment and recommendations for the next census

299. Evaluation of the coverage of the census is an important requirement of the quality report as required by the EU regulation about population and housing censuses. It is noticeable that Bosnia and Herzegovina could conduct such assessment of the 2013 census conducting successfully a PES. The methodology used as well as the implementation were satisfactory, but the recommendation of the SC to conduct reconciliation visits after the matching phase was not implemented. It would have helped in the determination of census erroneous inclusions. The next census should be planned including all phases of a PES, including reconciliation visits in order to measure the progress made in the coverage of the census.

300. Interpretation of the PES results might be very difficult for census users as it requires good knowledge on PES methodology particularly on measurements of coverage and content errors. In order to inform users about the main results of PES and its possible impacts on interpretation of census results, communication strategies for different types of census users should be prepared. These strategies can include preparation of an information note targeting general users, organising meetings with different types of users to discuss the results of PES, etc.

ASSESSMENT OF THE CENSUS RESULTS BY THE SC

301. The SC assessed the quality of the data in two ways:

- a. Reviewing published tables and requesting specific tables during the mission to assess the internal consistency of census data
- b. Comparing with external sources to assess the plausibility of the census results.

EMPTY ENUMERATION AREAS

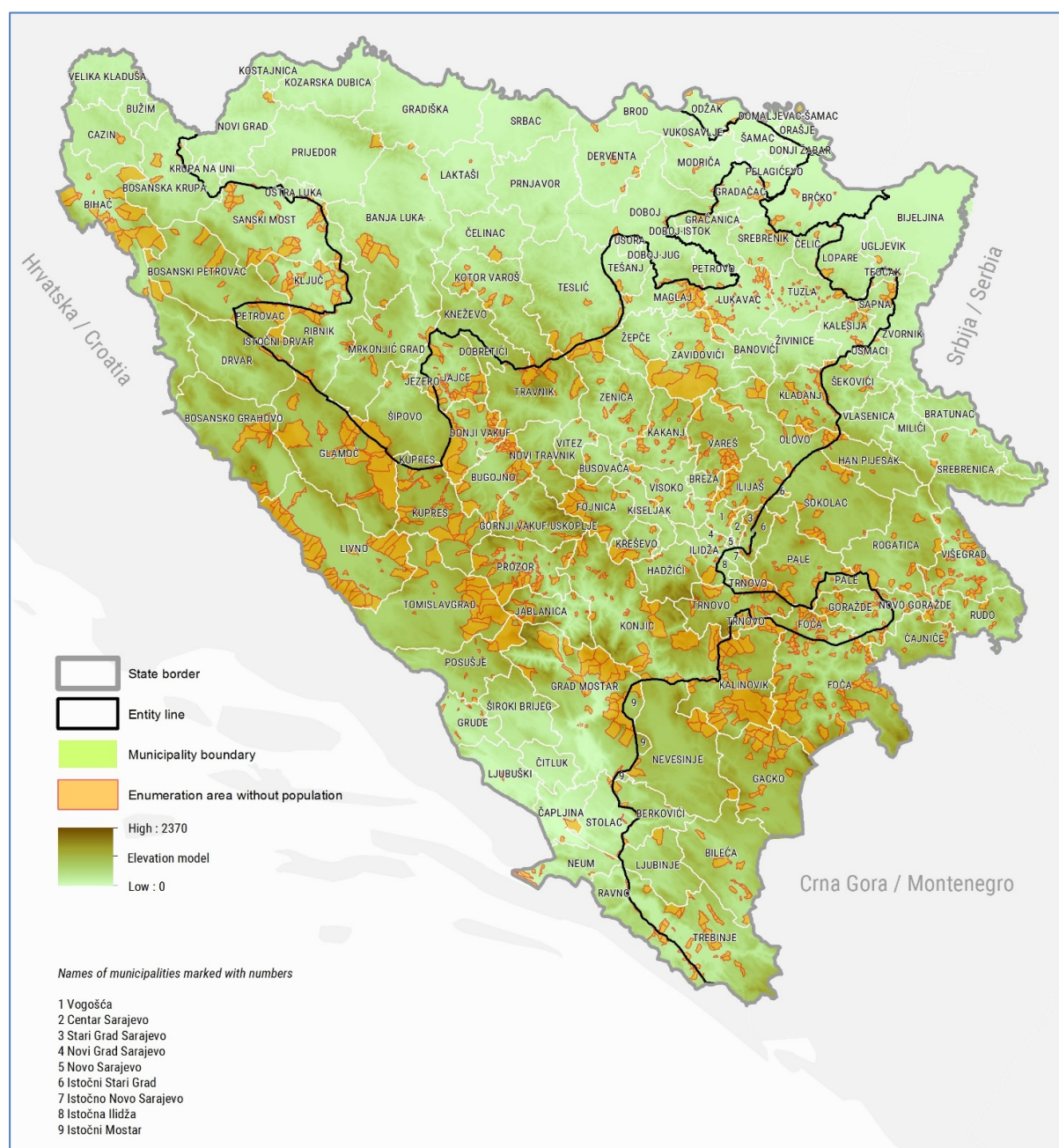
302. During the 24th SC mission, the SC linked the census geographic database at EA level to the ID EA codes of the census database, using a Geographic Information System (GIS) software. The SC has assessed that all the EAs in the census database are associated to their corresponding spatial units representing EAs, with the correct ID codes. The SC assessed also that all the territory of BiH was covered by the census operation, and that in 1,578 EAs no households were enumerated, equally distributed in percentage between the two Entities (Table 7).

Table 7 - Distribution of enumerated and empty EAs

Country/Entity/BD	Number of EAs	EAs without population	% of EAs without population
BiH	24,319	1,578	6.5
Federation of BiH	15,777	1,061	6.7
Republika Srpska	8,089	508	6.3
Brcko District	453	9	2

303. The territory of Bosnia and Herzegovina was divided at the time of the 2013 census into 142 municipalities, 79 in FBiH, 62 in RS and 1 in DB. The delineation of the EAs within each municipality was mainly derived from the 1991 census, and, therefore, it was expected that the geographic distribution of the population has changed, and that some mountainous areas remained not inhabited as they probably were already in 1991. Using GIS tools, the SC has located the EAs without census population, and randomly investigated their territory with the help of orthophotos. As a result, the SC has assessed that only a very few number of sparse residential buildings have been observed in the areas investigated (Figure 3). This can strengthen the findings of some under coverage reported by the PES in inhabited EAs.

Figure 3 - Enumeration Areas without enumerated population, 2013 census



304. Most of the EAs without enumerated population are located in areas covered by forests in the mountains, or along the Entity line, or in areas not anymore inhabited since 1991, or in sites occupied by public offices and commercial centres. In addition, the high percentage of vacant housing units detected by the census may have increased the number of EAs without resident population.

BUILDING CHARACTERISTICS

305. The SC has also carried out the following analysis on a selected number of census variables:

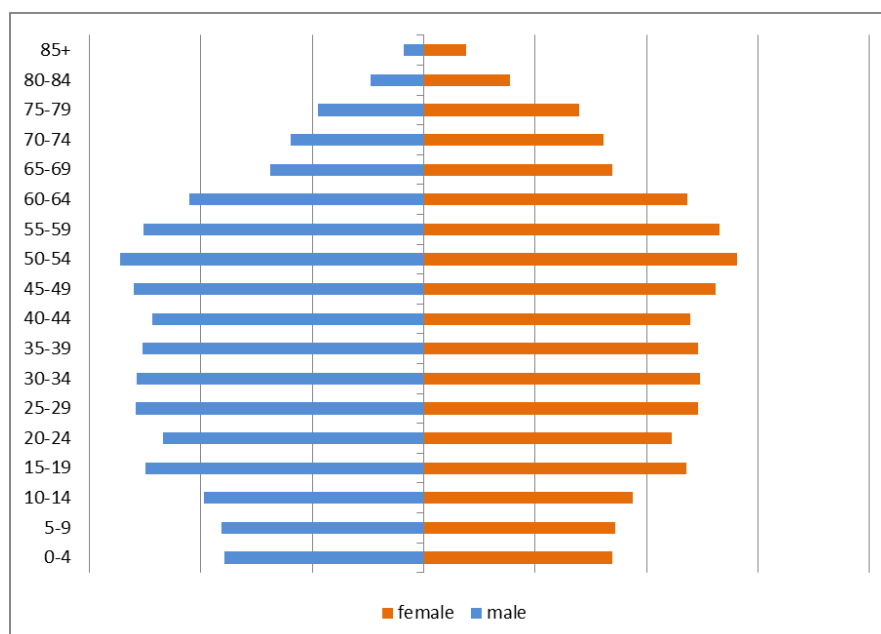
- Selection and location of EAs where the census enumerators reported at least one building composed of ten floors and more. The analysis assessed that such buildings are located in a small number of EAs across the country, all classified as urban areas. This occurrence excludes the presence of such high buildings in rural areas, which would have been unusual.
- Analysis of the distribution of piped water supply. The results showed that almost three quarters of these housing units are located in urban areas.
- Analysis of the distribution of the piped sewerage system. This showed that more than 2/3 of these housing units are located in urban areas.

DEMOGRAPHIC CHARACTERISTICS

306. The age structure of BiH as observed in the census results is consistent with the history of the country and current demographic pattern (Figure 4). The proportions of ages between 0-14 display a continuous decline, which is in accordance with the information derived from vital statistics, where a decrease in the number of births and a negative natural increase rate are registered during the recent years in Bosnia and Herzegovina.

307. The higher relative frequency for the population aged of 15-19 indicates an increase in the rate of live births, which is also in line with the vital statistics for after war period – post 1995. The decline of the population whose age is between 40-44 and 45-49 of both sex can be explained by economic migrations as well as by the effects of the war. The population aged 60 to 69 (during the war in period 1992-1995 their age was 39-48) present a lower percentage of males, and this could be also a factor depending on the war. The population with ages greater to 80 shows a higher number of females, which is quite usual within this particular population as the life expectancy is higher for female than for male.

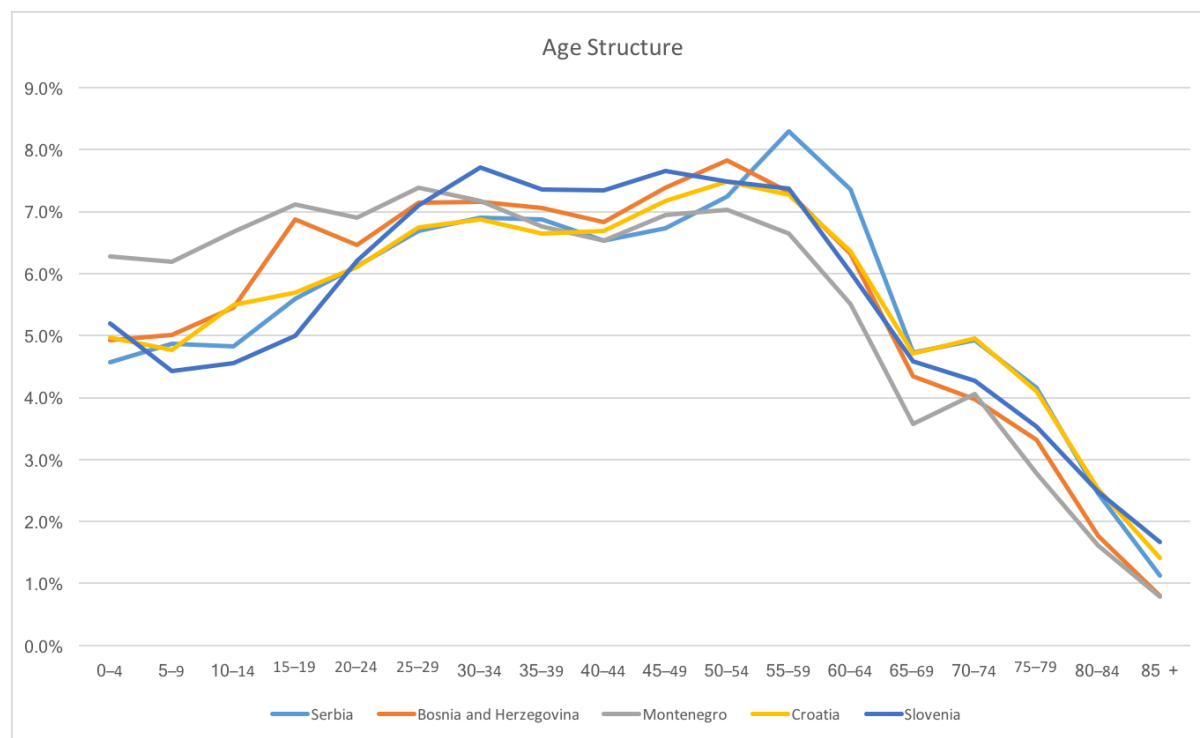
Figure 4 - Age structure of Bosnia and Herzegovina



Source: 1 - Census final results. BHAS. Calculation verified by the IMO-SC

308. The age structure of BiH is also comparable to the age structure of neighbouring countries (Figure 5).

Figure 5 - Regional comparisons of age structure



Source: 2 - Eurostat Census Hub and NSIs websites. Serbia: census 2011, BiH: census 2013, Montenegro: census 2011, Slovenia: 2011

309. Comparison with the number of live births in the recent years show the following differences:

Table 8 - Comparison census - vital statistics 0-5 years

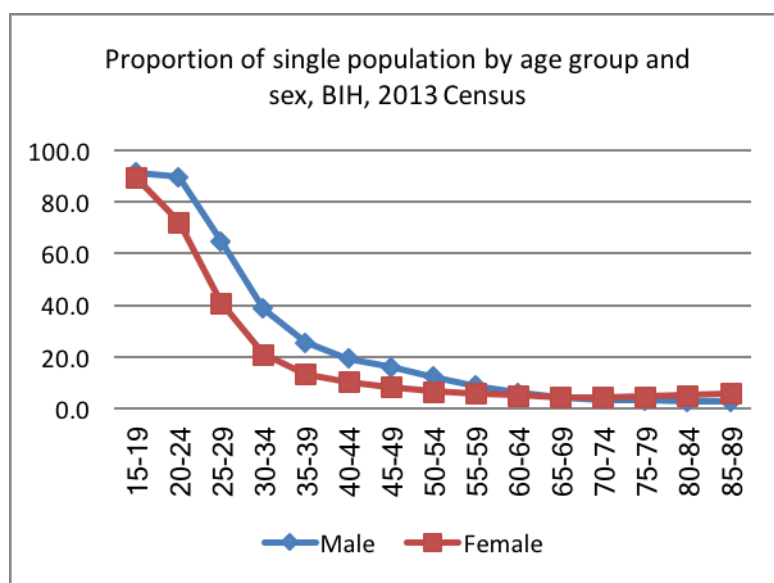
Age	BIH			FBiH			RS		
	Census	Live births	%	Census	Live births	%	Census	Live births	%
0	32.986	30.944	6.6%	21.718	20.383	6.5%	10.429	9.744	7.0%
1	34.294	31.834	7.7%	22.690	21.323	6.4%	10.772	9.938	8.4%
2	34.389	32.343	6.3%	22.691	21.605	5.0%	10.843	9.783	10.8%
3	35.874	34.308	4.6%	23.664	22.578	4.8%	11.419	10.737	6.4%
4	36.521	34.749	5.1%	24.080	22.813	5.6%	11.593	10.536	10.0%
5	36.166	34.203	5.7%	23.892	22.665	5.4%	11.423	10.638	7.4%

Source: 3 - Census 2013: BHAS, Vital Statistics: BHAS, FOS and RSIS

310. The source for live births is the civil registration, which is reported to be of good quality in the country (99.5% estimated by the MICS 2006), therefore the comparison is meaningful, of course not considering the impact of deaths and migration. The differences observed are comparable in magnitude with the over-coverage estimated by the PES. However, the differences are bigger in RS.

311. Marital status of population has been analysed using proportion of single population by age group and sex. As expected, the age pattern of proportion of single population as shown in Figure 6 is declining sharply with increasing age and becomes almost stable after age 50s. This general pattern has been observed in both males and females with some difference between two sexes reflecting younger age at first marriage for females compared to males. This finding has been observed in the data of three entities with no exception.

Figure 6 - Proportion of single population



Source: BHAS, Census 2013

ECONOMIC CHARACTERISTICS

312. During the validation phase conducted by the SIs, the size of working age population given by the census results was compared with the results of 2013 Labour Force Survey (LFS) conducted in April before the census date. In general, comparison of absolute figure of population in working age group obtained from the census and LFS gives some discrepancies because of several factors such as: (i) formulation of the questions on economic activity differs in two sources by asking detail questions in LFS and limited question in a census, (ii) sample frame might be outdated. This was the case for the LFS as the sample frame was based on 1991 census with some updates in 2009. The total population used to calibrate the LFS was 3,05 million, whereas at the same time the official population estimate for the country was 3,8 million, and the census gave a population of 3.5 million. It is quite obvious that the LFS underestimated the population and thus it is normal to find a higher working age population in the census than in the LFS (2,987,440 vs 2,598,000).

313. More relevant comparison is the comparison of activity rate and unemployment rates. Activity rates indicate high consistency between the census and LFS for both males and females by less than 1 % difference for males and 3% differences for females. This consistency has also been observed for all entities in particular for the results of FBIH and RS. A similar analysis has been made for the unemployment rate. This rate also indicates high consistency with 3-4 % differences for males and females between the census and LFS.

Table 9 - Comparisons Census - LFS 2013

	Male						Female					
	Activity rate		Employment rate		Unemployment rate		Activity rate		Employment rate		Unemployment rate	
	Cen-sus	LFS	Census	LFS	Census	LFS	Cen-sus	LFS	Cen-sus	LFS	Census	LFS
BIH	56.2	55.3	43.1%	40.6	23.2	26.5	35.6	32.5	26.5	23.0	25.5	29.0
FBIH	56.1	54.4	43.1%	39.7	23.1	27.1	34.3	29.8	25.6	21.3	25.3	28.4
RS	56.6	57.5	43.4%	42.9	23.4	25.3	38.1	37.8	28.3	26.7	25.6	29.5

Source: BHAS, Census 2013, LFS 2013

314. Analysis of activity rate and unemployment rate by age group provide valuable information for evaluation of the quality of data as it should differ by ages with the expectation of high activity rate in middle ages and low rates in old ages. Graphical illustration of activity rate by entities is provided below (Figure 7). As the graphs show, activity rates for males and females are very consistent with the expected pattern in all entities. In general, activity rates are increasing with increasing age and decreasing particularly after age 50s. Activity rate for males and females by age group indicates similar pattern with lower activity rate in each age group for females.

Figure 7 - Activity rates by entity, sex and age groups

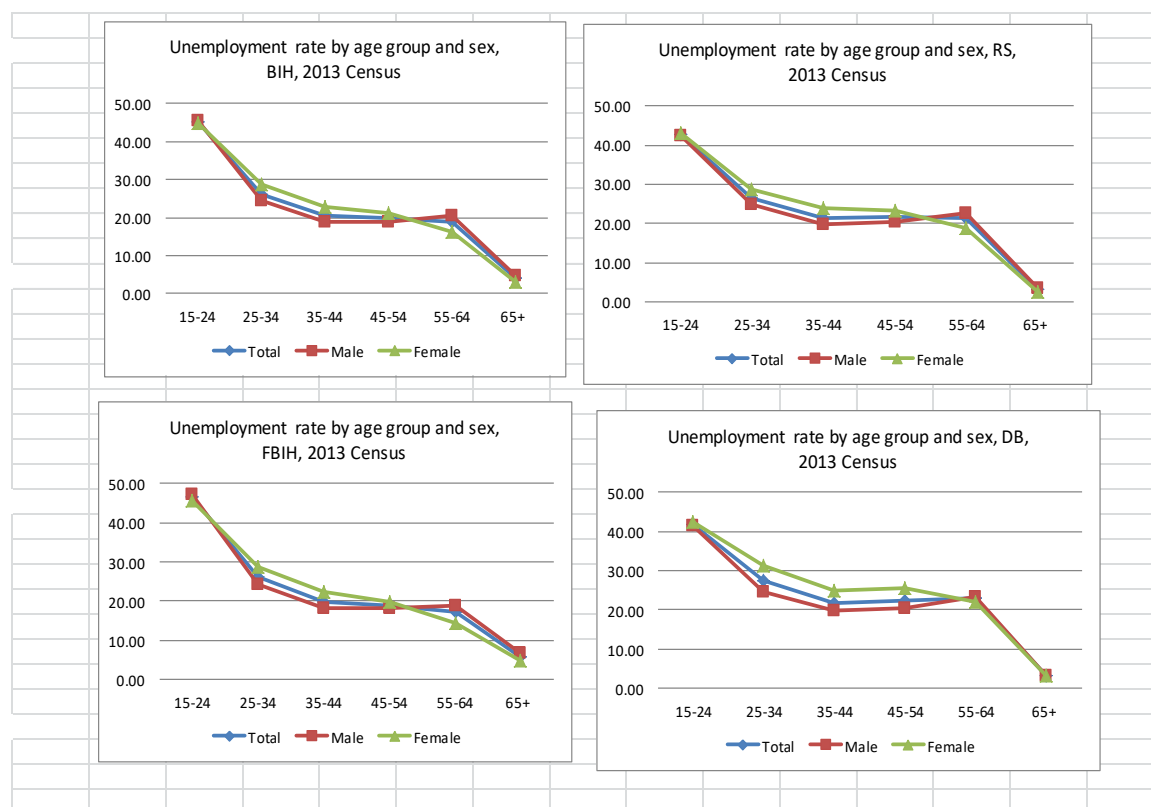


Source: BHAS, Census 2013

315. Unemployment rates calculated from the census database are given below by age group, sex and entity. The graphical presentation of unemployment rate provides information for evaluation of the quality of the data on unemployment. As the graph presents, the age pattern of unemployment rate is very similar by entities and consistent with what can be expected. In all entities, the youngest age group has the highest unemployment rate for both

sexes. The rate is gradually decreasing by increasing age. While males and females have similar age pattern, females have higher unemployment rate at all ages until the age 50s and slightly lower unemployment rate in old ages.

Figure 8 - Unemployment rates by entity, sex and age groups



Source: BHAS, Census 2013

EDUCATIONAL CHARACTERISTICS

316. The BHAS aggregates and publishes data collected on the basis of the administrative education surveys implemented by entity statistical offices and District Brcko. A comparison between the Census results and the survey results was performed by the team working on the education section of the Census. This comparison took in consideration pre-school and primary school pupils:

Table 10 - Comparison of educational attendance (pre-school and primary school) by age (census and administrative survey)

Attending pre-school by age			Attending primary school by age		
Age	Census	Administrative Survey	Age	Census	Administrative Survey
2 and less	0	3172	6 and less	33284	27445
3	4026	4038	7	34145	32019
4	4874	5164	8	34986	32771
5	6974	5531	9	35061	33379

6	1360	2592	10	36107	33464
7	0	0	11	36437	33720
TOTAL	17234	20497	12	38212	34717
			13	38991	36654
			14	29914	33824
			15 and more	3896	4140
			TOTAL	321033	302133

317. The comparison shows a divergence of -15.9% between the results coming from the Census and the administrative survey for what concern the pupils attending pre-school and a divergence of +6.3% for what concern the pupils attending primary school. Nevertheless, it should be noticed that the main difference for what concern the pupils attending pre-school are concentrated in the first age class (2 and less) for which there are 3172 pupils in the survey and 0 in the census. Also in the first class of the primary school the census data report a much higher value (33,284) against the survey data (27,445) for what concern the first age class (6 and less).

318. This is a typical situation when comparisons on education data are performed. Indeed, the Census has as a reference for the calculation of the age the 1st of October 2013 while, being from administrative source, the survey has different reference dates. Moreover, having the Census the 1st of October 2013 as a reference date and being this data at the beginning of the school year, some mistakes could have happened between pre-school and primary school in the border ages. Given these situations the SC proposed to make an attempt to consider together the pupils attending both pre-school and primary school:

Table 11 - Comparison of pre and primary school attendance by age (census and administrative survey)

Attending pre-school or primary school by age		
Age	Census	Administrative Survey
<i>2 and less</i>	0	3172
3	4026	4038
4	4874	5164
5	6974	5531
6	34644	30037
7	34145	32019
8	34986	32771
9	35061	33379
10	36107	33464
11	36437	33720
12	38212	34717
13	38991	36654
14	29914	33824

15 and more	3896	4140
TOTAL	338267	322630

319. Aggregated in this way the data shows a difference of 4.8 per cent between the results coming from the Census and the administrative survey. Such a value seems to be in line with the magnitude of the net coverage error measured by the PES.

320. Another validation performed on the education data was about the highest level of school completed. As no other sources about the country a comparison with the neighbouring countries was attempted:

Table 12 - Education attainment of the population 15 years and older (%)

	No educa- tion	Uncompleted basic educa- tion	Primary education	Secondary education	Tertiary education	Unknown
Bosnia and Herzegovina	4.9	9.2	21.4	51.8	12.7	0
Croatia	1.7	7.8	21.3	52.6	16.4	0.2
Serbia	2.7	11	20.8	48.9	16.2	0.4
Montenegro	2.3	7.3	20.8	51.9	17.1	0.5
Slovenia	0.3	4.1	24.7	53.3	17.5	0

Source: Censuses of Population (BiH: 2013, Croatia, Serbia, Montenegro, Slovenia: 2011)

321. The table shows how the figures on primary, secondary education is substantially similar to what was reported by the neighbouring countries while higher values are in the modalities no education and uncompleted basic education. The lower proportion of persons with higher education is confirmed by the Institute of Statistics of UNESCO:

Table 13 - Proportion of persons 25 years and older with higher education

	Bosnia and Herzegovina	Croatia	Montenegro	Serbia
% of persons 25 and older with higher education	11.3	18.3	19.5	18.2
Year	2014	2011	2011	2013

Source: UNESCO Institute of Statistics (UIS)

322. Finally, a comparison of the illiteracy rate was conducted both with the neighbouring countries and the previous Censuses in BiH:

Table 14 - Illiteracy rates (population 10 years and older)

	Total	Male	Female
Bosnia and Herzegovina	2.8	0.8	4.8
Croatia	0.8	0.4	1.3
Serbia	2.0	0.7	3.1
Montenegro	1.5	0.3	1.2

Source: Censuses of Population (BiH: 2013, Croatia, Serbia, Montenegro, Slovenia: 2011)

Table 15 - Illiteracy rates (population 10 years and older) in Bosnia and Herzegovina

	1981	1991	2013
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Total	14.5	9.9	2.8
Male	5.5	3.4	0.8
Female	23.3	16.4	4.8

Source: BHAS, Censuses of Population

323. Also in this situation the data show a trend that is substantially in line with what measured in the previous censuses and with what reported by the neighbouring countries.

AGRICULTURE CHARACTERISTICS

324. The validation of the 2013 Census results on agriculture was done by comparison of the total number of agricultural households, surface of used/cultivated agricultural land and number of animals owned with the same one from the Census 1991 and with data obtained from regular surveys: Planted surfaces at the end of the spring sowing and Annual survey of number of cattle and livestock production.

325. The comparison of the 2013 and 1991 census data show a significant decrease both in number of agricultural households and in the animals owned. Agricultural households in 2013 Census are 16% lower compared to the 1991 census. One of the possible reasons can be the consolidation of land/estates and in the association of farmers that is a general trend evidenced in EU in the given decade and it results in a decrease in the number of agricultural holdings. The comparison on the number of animals shows that:

- The number of cattle is 46 % lower in the 2013 census data compared to the 1991 census data, the number of sheep by 20%, the number of pigs by 15%, number of horses is five time less, and the cause of such trend is related to the war developments (1992-1995), when the livestock was destroyed by approximately 70%;
- The number of poultry is at the same level in the 2013 and 1991 census; i.e. the production retained the same level, which can be explained by faster turnover in poultry. In the post-war period and due to bad economic situation the poultry represented a significant proportion of the populations' nutrition, as shown by the Household Budget Survey in BiH (in 2007 and 2011)

326. For what concerns the data on number of cattle collected by the 2013 Census in BiH compared to the regular surveys, it is possible to observe that the number of animals of all species is higher in the regular surveys compared to the Census and vary in the interval of 10-30%, except poultry. Number of poultry in the regular surveys covers also a part of entrepreneurs for which data are also estimated together with the households at the municipal level.

327. Regarding the data on used and cultivated agricultural land from the 2013 Census compared to the regular "Survey on Planted Surfaces at the end of the spring sowing in 2013", the results shows a general under estimation of all the categories. The exceptions are the nurseries that are not fully comparable due to different methodology applied in the data collection.

328. Generally, it can be concluded that the data resulting from the 2013 Census should be considered as a first step for a more detailed estimation of land used or cultivated in BiH, and for animals owned by each Agricultural entity. The information gathered in the census should be used for preparation of address book of agricultural households for Census of agriculture and for drawing sample for the regular agricultural surveys.

329. All three sources are not very appropriate for comparison. The period of 22 years between the 1991 and 2013 Census is quite long and considering the possible impact of the war (1992-1995) that could cause possible structural changes in the agriculture. The regular surveys apply a Method of Estimation for Family Agricultural Holdings that do not provide fully accurate and reliable data. On the other hand, inaccuracy of the data gathered in the Census is possible due to respondents' fear of use of their data for tax purposes. Still, the gathered data are of great importance for preparation of Address book of agricultural households for Census of agriculture and even before the census for drawing sample for the regular agricultural surveys.

Final assessment and recommendations for the next census

330. The SC assessed the quality of the census results by reviewing the published tables and requesting additional ones, as well as comparing census results with external data and neighbouring countries. The census results are generally internally consistent. Comparisons with the few external sources available show consistence of the relative distributions; and differences of absolute figures in the magnitude of the coverage rate provided by the PES. International comparisons with neighbouring countries confirm the plausibility of the census results.

DISSEMINATION

PRELIMINARY RESULTS

331. Preliminary census results were published in accordance with the Census Law within 90 days after the enumeration. On November 5th, 2013 BHAS released the preliminary Census results at BiH, entity, Brčko District, cantonal and municipal levels. The preliminary results presented the total number of enumerated persons, households and dwellings. Afterwards, in December, FOS and RSIS released the preliminary Census results at the lower - settlement level for FBiH and RS, and BHAS for the settlements in District Brčko. The press release and the publications were issued in paper as well as PDF format were available on the web sites of the respective statistical institutes.

332. Both in the press release and in the publications, it was explained that the preliminary results were prepared immediately after the census by summing up the number of enumerated dwellings and individuals from the EA control forms and that they were limited in their content. In particular, it was stressed that the total number of enumerated persons was not the same as the total resident population, which would be released in the final census results after processing the content of the questionnaires. Similarly, no results by ethnicity or any other characteristic could be released before capturing and processing the questionnaires.

333. Unfortunately, this did not prevent interest groups and some media from passing information on the speculated ethnic structure of the country or municipalities, or to comment on the enumerated population as if this was the resident population.

DISSEMINATION STRATEGIES

334. The strategy for dissemination of the 2013 Census results has been revised several times. In December 2013 a tentative dissemination plan was adopted according to which the publishing of the final census results was supposed to start in April 2015 by releasing the first

publication on population by sex and age and to end in August 2016 with the last publication on fertility. BHAS would be responsible for dissemination of the census results on BiH, entity, Brčko District, cantonal and municipal levels. FOS and RSIS for their entities and BHAS for District Brčko would be responsible for dissemination of the census results at settlement level.

335. The dissemination strategy included two parts, the first related to publications, and the second to online dissemination through the websites of the statistical institutions. Despite the fact that the dissemination strategy should be developed with consultation of users to learn their needs, such consultation was not carried out. The management explained that they knew the users' needs since in the past period they were constantly receiving data requests.

336. According to the initial plan, 15 publications (16 with Book 0 on preliminary results) would be published. The publications would consist of methodology, tables with data, analytical part and graphics. In addition, a Census atlas would be prepared, where data contained in the 15 publications presented as maps. The online dissemination of the final results was planned to use of PC-AXIS software provided with support of Danish and Swedish national statistical office (NSO). The inter-institutional working group on dissemination had reviewed the plan for thematic reports with the support of the technical assistance in February 2015. The working group considered reducing the number of reports from 16 to 9 reports by combining some of related census topics in one publication. The Census Central Commission agreed on releasing the main results of the census with 9 tables at its meeting on February 11, 2015. The working group also considered expanding the number of tables up to 26 for the first release of census results according to the suggestion of the TA.

337. Dissemination of census results was finally planned in three modes: (1) dissemination of the tables through printed publications and in electronic version on the internet as PDF and Excel format, (2) online interactive dissemination database allowing users to generate their own tables at the level of municipality and settlements, (3) geo-portal for map dissemination of data for all geographical units with minimum level of settlements. In addition will be published a census atlas and a publication on the results of the PES.

338. As earlier agreed, the entity statistical institutes would publish census data on their entities with a degree of synchronization by BHAS. All publications that would be published by BHAS would be on state, entity, canton and municipal level, and only eight tables within the publications would be published on settlement level. The planned publications (from Book 0 to Book 8) would cover the following topics:

0. Report on main census results
1. Sex, marital status and fertility of female population
2. Ethnicity, nationality and mother tongue
3. Family characteristics
4. Education characteristic
5. Building, dwellings and living conditions
6. Disability
7. Economics characteristic
8. Migration

DISSEMINATION OF FINAL RESULTS

339. In accordance with provisions of the Census Law, the first census results were published on 30 June 2016 and presented to the media during a press conference. Following the

conference, the electronic version of the publication in pdf format as well as the tables in excel format were placed on BHAS web site. The whole publication was published in Official Gazette of BiH.

340. The first publication “Census of Population, Households and Dwellings in Bosnia and Herzegovina, 2013, Final Results” consists of 17 tables. Except the first table that presents data on state and entity level only, all other tables (2-17) consist of three parts presenting data on different administrative levels: (1) state and entity level i.e. BiH, FBiH, RS and BD (2) Canton Level in FBiH (3) municipality level. The publication provides the census results on population characteristics (age and sex, ethnicity, religion, mother tongue, marital status, number of children ever-born, disability, educational characteristics, economic characteristics, housing units (number of floors, occupancy status, floor space) and households engaged in agricultural activities.

341. The publication includes methodological part covering the definition of the census topics which are data presented in the publication as well the census questionnaires in the annex. The publication was prepared for printing only 18 hours before the conference, thus only 130 copies were printed. As there is a substantial demand for the book expressed by embassies, state institutions and other parties, additional 600 copies will be printed. In the first 3 days, about 5000 downloads of the publication placed on the web site were registered.

342. The next day following the publication of the final census results, The Federal Statistical Office placed the publication on their web site as well the final data in PC- Axis database. In addition, the office prepared tables by sex and age, cantons and municipalities. These tables were disseminated and already are used for municipal budget planning as well in the health sector.

343. At the time of the last mission of the SC in September 2016, the first report on sex, marital status and fertility of female population was ready for publication. According to the current plan, remaining reports - eight reports - would be published until the end of the year 2016.

344. The issue for ensuring data confidentiality within data dissemination was further explored. For that purpose, the experiences in other censuses and in particular the censuses in the neighbouring countries were considered. The team tried to have an expert through the TA, but no appropriate expert was found. Thus the remaining solution is to use some light version of the disclosure control with which the data on three sensitive questions will not be disclosed for settlements with less than 10 individuals and 3 households.

345. The Census web portal will consist of three parts, (1) electronic version of the printed publications in PDF and their tables in Excel format, (2) online interactive dissemination database and (3) geo-portal. There is considerable delay in developing dissemination strategies consequently developing web portal with its new features of online dissemination databases.

346. GIS tools will be used for graphics and maps and were already applied for preparation of the maps in the Book zero (10 maps were prepared with ArcGIS software). The dissemination team had some consultation with the TA expert team about the content of the maps and graphics and received some proposals. The working group will analyse the proposals and decide the content and layouts. A digital census atlas is also planned to be produced by BHAS at municipality level. Both Entity Statistical Institutes have planned to integrate census and spatial data for thematic mapping purposes and more advanced spatial analysis. There is also a plan to apply the EU DEGRUBA classification making use of census data, and grid statistics.

347. Shortage of human resources for dissemination was observed, since the same persons (methodologists and statisticians) who are already involved in housing, demographics, labour force and other working groups for other preceding or simultaneous activities were needed for its preparation.

348. The entity statistical institutes were involved in the preparation of the data for dissemination (as in all other census phases), although the management and the employees of RSIS refused to sign the final version of the census results before publishing.

Final assessment and recommendations for the next census

349. In order to timely disseminate census results, considerable effort should be given to develop dissemination strategies taking into account the needs of wide range of users of census data. Consultation with users is essential for identifying the needs of users and appropriate technologies to improve the accessibility to census results. Given the widespread availability and use of technology for easier production and access to census products, it is necessary to develop such technologies in the planning phase of dissemination.

350. Thematic reports are more analytical reports providing interpretation of census results based on key indicators and cross-tabulations of census topics. It is recommended that multidisciplinary task teams be established, including line ministries and agencies and academic institutions for the preparation of thematic and analytical reports in order to respond to a country's specific development needs and emerging issues. These reports can also be used to show time series and trend analyses of socioeconomic and demographic indicators and may combine census data with other data sources to provide a more comprehensive and current outlook.

PROTECTION OF PERSONAL INFORMATION – ARCHIVING

351. One of the objectives of the IMO was to monitor the compliance of the whole Census exercise with standards on data protection and confidentiality, as provided for in the Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data of the Council of Europe, and the relevant European Union regulations in force.²

352. The measures taken to ensure the protection of personal information during the data processing phase were satisfactory and their implementation assessed as explained in the data processing part of this report.

353. However, regarding the measures to archive/destroy census materials after the completion of the processing phase, until mid-2016, no steps were taken by the BHAS to liaise with the National Archives and the Agency for Protection of Personal Data to prepare a plan despite constant recommendations from the SC.

354. Between May and September 2016, BHAS had a series of meeting with representatives of National Archives as well as with the Agency for Protection of Personal Data. It appeared that the National Archive expect from the BHAS to define a proposal of census material to archive. Similarly, the Agency for Protection of Personal Data does not require any a priori confidentiality safeguards but will assess the procedures/measures chosen.

² Memorandum of Understanding between the European Commission, acting for and on behalf of the European Union, and the Council of Europe, and the Council of Ministers of Bosnia and Herzegovina, acting for and on behalf of Bosnia and Herzegovina on, the International Monitoring Operation of the Population and Housing Census in Bosnia and Herzegovina in 2012/13.

355. The BHAS drafted a “*Rulebook on archiving and destroying of census material originated from implementation of census of population, households and dwellings in Bosnia and Herzegovina 2013*”. The rulebook stipulates that the Director of BHAS shall nominate a commission whose task will be to analyse, prepare and submit to the National Archives a list of census materials, for the whole country or a representative sample, for permanent archiving, and a list of census materials to be destroyed. At the time of the last mission of the SC, in September 2016, the rulebook had not yet been signed by the Director of BHAS and the Commission not yet installed. The draft rulebook does not mention the composition of the Commission and whether it will be composed of representatives of the sole BHAS or include representatives from the two entity SIs. No deadline had been fixed and the situation was almost the same as at the time of the previous mission. It seemed obvious that there was no agreement among the three SIs on what census material should be archived and what should be destroyed.

356. Regarding the databases, a draft protocol on Unified Database was prepared by BHAS but was not discussed among the three SIs. It describes two main databases: one to be shared among SIS, containing no personal identification (while not defining what it means) and protected against alteration, and a database to be stored centrally. The latter does not contain ethnicity, religion and language and serves as a sampling frame for selection of samples. Access to this database shall be granted only to authorised persons nominated by the Director of BHAS and in a safe room with particular conditions of access. Data to be stored will be organised and treated in the manner prescribed by this Protocol no later than 31.12.2016.

357. During the last SC mission, a meeting was held with the staff in charge of household surveys sampling design. This helped identify the real needs of the SIs. For example, the only personal identification needed is the name and surname of the head of household to the exclusion of any other personal identification. No sampling frame is required for person living in collective households or institutions. The ordinal numbers of building, dwelling and household are necessary to allow the use of the census enumeration map to find the household on the ground in case the address is not precise enough. Therefore, the sampling frame database would be composed of the dwelling-household record, including the name and surname of the head of the household, and the individual records of the household members (including the head), without name, surname, ID number, ethnicity, religion and language.

Final assessment and recommendations for the next census

358. Considering that the SC was not able to assess the decisions not yet taken regarding archiving and destroying of census material and consequently their implementation, **the SC expresses strong reservations about the way personal information will be handled after the census operation.**

359. The SC wishes to stress that whereas the Census Law provides ownership of the census database to the Statistical Institutions, the SIs do not own the personal data that remain the property of the individuals. SIs only have the right to use this data for statistical purpose.

360. In the specific context of BiH, and the inclusion of sensitive information such as ethnicity, religion and mother tongue, it is of utmost importance that any possibility of disclosure be avoided. After the last census in 1991, it happened that people asked the SIs a certificate of their ethnicity declared in the census, for the purpose of a job application in the public sector. This has been also reported for the current census. Therefore, to avoid any pressure on the Statistical Institutes and their staff, the SC considers that the best option is to remove any

possibility of identification in the databases: name, surname, personal ID, address of precise location.

361. Therefore, the SC reiterates its recommendation that at the end of the data processing the census materials, including paper questionnaires and images, be destroyed and the personal data be removed from the Census database, unless the National Archives require to archive all or part of the paper questionnaires for historical reasons. If needed, the SC considers it would be worth amending the census law to ensure the strict protection of individual data and protect the Statistical Institutions from any suspicion of misuse of the data collected.

362. The SC recommends to keep the intermediate databases (after data capture) but without any personal identification data, in order to be able to re-run the edits. These databases should be kept under high security conditions.

363. The SC recommends to constitute a dissemination database with all statistical information at dwelling and individual level, but without names, surname, personal ID number, and without the ordinal numbers of building, dwelling, household and individual that could allow merging with the sampling frame database as well as identifying the household on the ground. Households records, with their individual records attached or linked, should be shuffled in the database to not keep the original order.

364. The SC recommends to constitute a database for sampling frame composed of the dwelling-household record, including the name and surname of the head of the household, and the individual records of the household members (including the head), without name, surname, ID number, ethnicity, religion and language. In addition, the SC recommends to consider limiting this database to a subset of the population, as master sample, taking into consideration the intercensal programme of households surveys. This would avoid to keep a complete population database.

365. Regarding the access/sharing of the databases among the three SIs, the SC recommends to develop a solution combining the access of the SIs to the databases as provided by the census law while ensuring strict protection of data confidentiality.

OVERALL ASSESSMENT OF THE 2013 POPULATION AND HOUSING CENSUS

366. Based on the above assessment, the IMO-SC concludes that the census in Bosnia and Herzegovina was as a whole conducted in compliance with international standards. Although the pressure and resulting discussions on the questions and enumeration data on ethnicity, religion and mother tongue had an impact on the management of the operations, the census results are in general considered valid and useful for economic and social policy planning, which is a key objective of censuses around the world.

367. Regarding the overall processes, the IMO-SC recommends - in view of future censuses in Bosnia and Herzegovina – to grant more attention to some aspects. In particular, a better design and implementation of communication activities around the census operation and stronger institutional cooperation would contribute to a more efficient management of the census process. Given their optional character and their impact on the census processes, Bosnia and Herzegovina should consider not including sensitive questions bearing high political impact such as ethnicity, religion and mother tongue, in future censuses.

368. The SC expects the statistical institutes to implement the recommendations from the IMO regarding the protection and confidentiality of personal information in line with international standards.

ANNEX I – CENSUS QUESTIONNAIRES

POPIS - POPIS
BH - 2013 - BH

CENSUS OF POPULATION, HOUSEHOLDS AND DWELLINGS IN BH 2013
PERSONAL QUESTIONNAIRE (P-1)

Write information from questionnaire in Cyrillic script and Latin script in the space provided.

Latin script: ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

Cyrillic script: ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

Form: ☒ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 0

Entity: BH ☐ FB ☐ RS ☐ ME ☐ BA ☐ BI ☐ BR ☐ BU ☐ BV ☐ BW ☐ BY ☐ BZ

Municipality: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 0

Enumeration area: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 0

Dwelling: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 0

Household: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 0

Person: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 0

Name: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 0

Father's or mother's name: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 0

Surname: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 0

Sex: ☒ 1 ☒ 2

Date of birth and PIN: DAY MONTH YEAR THE LAST EIGHT DIGITS OF THE PIN

PLACE OF RESIDENCE

1. PERSON TO BE ENUMERATED

a) Household member who lives in the place of the census for a year or longer or who is not in the place of the census with Mother's in the house

b) Household member absent from the place of the census due to war, injury or other reasons for a year or longer

c) Temporarily present in the place of the census because of a year due to availability or stay

2. IS THE PERSON PRESENT IN THE PLACE OF THE CENSUS

Yes ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

No ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

3. a. The person's last place of residence

b. The person's place of residence

4. DURATION OF ABSENCE PRESENCE

One year or more (number of years) ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 0

Less than one year (number of months) ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 0

5. HOW LONG THE PERSON INTENDS TO BE ABSENT PRESENT

One year or more ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

Less than one year (number of months) ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 0

6. PLACE WHERE THE ABSENT PERSON USUALLY RESIDES OF TEMPORARILY PRESENT PERSON

In Bosnia and Herzegovina ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

Abroad ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

7. FREQUENCY OF RETURNING TO THE PLACE OF THE CENSUS TO REPLACE OF USUAL RESIDENCE OF TEMPORARILY PRESENT PERSON

Less than once a week ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

At least once a week ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

8. PLACE OF BIRTH

In Bosnia and Herzegovina ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

Abroad ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

9. PLACE OF MOTHER'S USUAL RESIDENCE AT THE TIME OF PERSON'S BIRTH

In Bosnia and Herzegovina ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

Abroad ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

QUESTIONS 10 AND 11. NOT TO BE ANSWERED BY PERSONS TEMPORARILY PRESENT IN THE PLACE OF THE CENSUS

10. HAS THE PERSON ARRIVED TO THE PLACE OF THE CENSUS FROM OTHER SETTLEMENT IN BH OR FROM ABROAD

Yes ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

No ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

11. WHERE DID THE PERSON COME FROM TO THE PLACE OF THE CENSUS

From other place in BH ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

From abroad ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

12. HAS THE PERSON EVER COME TO THE PLACE OF THE CENSUS FOR ONE YEAR OR LONGER

Yes ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

No ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

13. PLACE WHERE THE PERSON RESIDED DURING THE BH CENSUS (ONLY PERSONS BORN BEFORE 1 APRIL 1991)

In the settlement the person resides now ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

In other place in BH ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

Abroad ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

14. HAS THE PERSON REFUSED FROM BH (AFTER 1 APRIL 1991)

Yes ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

No ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

15. HAS THE PERSON RETURNED FROM REFUGEE

Yes, to the place the person resided before ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

No, to other place in BH ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

No, the person has not returned to BH ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

16. WAS THE PERSON DEPORTED IN BH (AFTER 1 APRIL 1991)

Yes ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

No ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

17. HAS THE PERSON RETURNED TO THE SETTLEMENT WHERE HE WAS DEPORTED FROM

Yes ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

No ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

18. IS THE PERSON STILL FORMALLY LEGALLY CONSIDERED DEPORTED PERSON IN BH

Yes ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

No ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

19. CITIZENSHIP OF

BH ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

Other country ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

Without citizenship ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

20. ETHNICITY OR GROUP

Other ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

21. LEGAL STATUS

Married ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

Single ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

Divorced ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

Widowed ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

22. TOTAL NUMBER OF CHILDREN SO FAR BORN (including those who have died)

0 ☒ 1 ☒ 2 ☒ 3 ☒ 4 ☒ 5 ☒ 6 ☒ 7 ☒ 8 ☒ 9 ☒ 0

23. LIVE-BORN CHILDREN, MONTH AND YEAR

Month: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 0

Year: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 0

PERSONS ARE NOT OBLIGED TO ANSWER QUESTIONS 24 AND 25 ACCORDING TO THE ARTICLE 12 OF THE LAW ON CENSUS IN BH

24. ETHNICITY (AFFILIATION)

25. RELIGION (AFFILIATION)

26. NO OTHER MAJOR

27. WHICH OPERATIONS DOES THE PERSON CAN PERFORM ON PC (ONLY FOR PERSONS BORN BEFORE 1 OCTOBER 1991, MULTIPLE ANSWERS POSSIBLE)

28. HIGHEST LEVEL OF COMPLETED EDUCATION (ONLY FOR PERSONS BORN BEFORE 1 OCTOBER 1991)

29. QUALIFICATION (ONLY FOR PERSONS WHOSE NO QUALITY, ADVANCED SCHOOL QUALITY, ACADEMIC QUALITY, IS MARKED FOR QUESTION 28)

30. CAMP PERSON READ AND WRITE SHORTER (ONLY FOR PERSONS WHOSE NO AND NOSE MARKED FOR EDUCATION OR WITH INCOMPLETE BASIC EDUCATION)

31. SCHOOL ATTENDANCE

32. ECONOMIC ACTIVITY (QUESTIONS FROM 33 TO 39 ARE TO BE ANSWERED BY PERSONS BORN BEFORE 1 OCTOBER 1991)

33. DID THE PERSON WORK PERFORMING AN ACTIVITY AT LEAST ONE HOUR, TO PROVIDE FOR LIVING OR MAINTAIN CONTRIBUTING FAMILY MEMBER DURING THE WEEK FROM 25 TO 28 SEPTEMBER (NO ANSWER IF FORMAL STATUS)

34. IF A JOB IS OFFERED NOW, COULD THE PERSON START WORKING DURING THE PERIOD FROM 1 TO 8 OCTOBER

35. STATUS OF PERSON IN INACTIVITY

36. OCCUPATION FOR EMPLOYED PERSONS OR WHO WERE EMPLOYED

37. STATUS IN EMPLOYMENT

38. ACTIVITY OF THE COMPANY/ENTERPRISE, SHOP, CRAFT, ETC. FOR PERSONS EMPLOYED OR WHO WERE EMPLOYED

39. PLACE OF WORK/EDUCATION (ONLY TO BE ANSWERED BY PERSONS WHO ARE CURRENTLY EMPLOYED OR ATTENDING SCHOOL)

40. MEANS OF DAILY TRANSPORT TO WORK/EDUCATION (NO MORE THAN 3 ANSWERS)

41. MAIN SOURCE OF INCOME IN THE LAST 12 MONTHS

42. SUPPORT FROM FINANCIAL PROVIDER OF THE EMERGENCY PERSON

43. DOES THE PERSON EXPERIENCE ANY DIFFICULTIES IN PERFORMING BASIC ACTIVITIES AT HOME, AT WORK OR IN SCHOOL, BRINK ONE OR SEVERAL ANSWERS

44. DOES THE PERSON WITH DIFFICULTIES NEED ASSISTANCE OF OTHER PERSON (TO BE ANSWERED BY PERSONS HAVING PROBLEMS MENTIONED UNDER QUESTION 43)

45. WHO PROVIDED DATA

TO BE FILLED IN BY THE ENUMERATOR

DATA ON HOUSEHOLD

33. TYPE OF STATUS OF DWELLING UNIT

34. TYPE OF HEATING OF THE DWELLING UNIT

35. MAIN TYPE OF ENERGY USED FOR HEATING OF THE DWELLING UNIT (MULTIPLE ANSWERS POSSIBLE)

36. POTABLE WATER SUPPLY SYSTEM

DATA ON AGRICULTURE

37. TO VALUABLE LAND OF THE HOUSEHOLD IN BH (OWN + RENTED)

38. DID THE HOUSEHOLD USE CULTIVATED AGRICULTURAL LAND FOR AGRICULTURAL PRODUCTION DURING THE LAST 12 MONTHS AMONG RABBIT, CATTLE, POULTRY OR BEES ON THE CENSUS DATE, AND USED FISH AND AQUARIUMS FISHING?

39. WRITE DOWN THE SURFACE OF USED AGRICULTURAL LAND, RESPONSES AND NUMBER OF CATTLE, POULTRY OR BEES DURING THE CENSUS DAY

40. DOES THE HOUSEHOLD SELL ITS OWN AGRICULTURAL PRODUCTS?

41. DOES THE HOUSEHOLD AGRICULTURAL PRODUCTION OR ITS MAJOR PART TAKE PLACE IN THE CENSUS WARD/PSU?

42. Name of the municipality:

FOR ENUMERATOR

43. Name of the household:

44. Name of the dwelling unit:

45. Name of the dwelling unit:

46. Name of the dwelling unit:

47. Name of the dwelling unit:

48. Name of the dwelling unit:

49. Name of the dwelling unit:

50. Name of the dwelling unit:

51. Name of the dwelling unit:

52. Name of the dwelling unit:

53. Name of the dwelling unit:

54. Name of the dwelling unit:

55. Name of the dwelling unit:

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92. Name of the dwelling unit:

93. Name of the dwelling unit:

94. Name of the dwelling unit:

95. Name of the dwelling unit:

96. Name of the dwelling unit:

97. Name of the dwelling unit:

98. Name of the dwelling unit:

99. Name of the dwelling unit:

100. Name of the dwelling unit:

POPIS - 2013 - BiH

CENSUS OF POPULATION, HOUSEHOLDS AND DWELLINGS IN BH 2013

HOUSEHOLD AND DWELLING QUESTIONNAIRE (P-2)

Later script: ☒ Cyrillic script: ☐ FORM: ☐ ENTITY/DOB: ☐ MUNICIPALITY: ☐ ENUMERATION AREA: ☐ DWELLING UNIT: ☐ HOUSEHOLD: ☐ BUILDING: ☐

Street:

House number: Supplement to the house number: Entrance: Dwelling unit number: ID - number:

DATA ON HOUSEHOLD

1. TYPE OF HOUSING

2. TYPE OF COLLECTIVE QUARTER

3. USE OF BUILDING

4. FLOOR OF THE DWELLING UNIT

5. FLOOR SPACE (m²)

6. KITCHEN

7. BATHROOM

8. TOILET/FACILITIES SEPARATE AND/OR WITH BATHROOM

9. WATER SUPPLY SYSTEM

10. SEWERAGE DISPOSAL SYSTEM

11. ELECTRICITY

12. NATURAL GAS

13. CENTRAL HEATING

DATA ON BUILDING HOUSE

14. TYPE OF BUILDING HOUSE WHERE THE DWELLING UNIT IS

15. BUILDING HOUSE WITH NUMBER OF FLOORS

16. MATERIALS USED FOR THE CONSTRUCTION OF ROOF OF THE BUILDING HOUSE

17. MATERIALS USED FOR THE CONSTRUCTION OF SUPPORTING SYSTEM OF THE BUILDING HOUSE

18. LIFT IN THE BUILDING HOUSE

19. ACCESSIBILITY TO THE BUILDING HOUSE

20. STATE OF PREPARATION OF THE BUILDING HOUSE

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LIST OF PERSONS

Ordinal number of the person	Name and surname	Name of one parent	Name of spouse/partner	The person is		Relationship to the head of household		Ordinal number of the family	Status of the household member	Reason of absence
				Household member	Temporarily present	Relationship	Code			
(a)	1	2	3	4	5	6	7	8	9	10
☐ 1				☒	☒					
☐ 2				☒	☒					
☐ 3				☒	☒					
☐ 4				☒	☒					
☐ 5				☒	☒					
☐ 6				☒	☒					
☐ 7				☒	☒					
☐ 8				☒	☒					
☐ 9				☒	☒					
☐ 0				☒	☒					
☐ 1				☒	☒					
☐ 2				☒	☒					
☐ 3				☒	☒					
☐ 4				☒	☒					
☐ 5				☒	☒					
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☐ 7				☒	☒					
☐ 8				☒	☒					
☐ 9				☒	☒					
☐ 0				☒	☒					

The household is any family or other community of persons (multi-person household), that is a group of two or more persons who continue to occupy the whole or part of a housing unit and provide themselves with food and possibly other necessities for living. Members of the group may provide themselves to a greater or lesser extent.

The household is every person who has abode (one-person household) or a person who lives in a separate housing unit or who occupies, as a lodger, a separate room (or rooms) of a housing unit but does not join with any other occupants of the housing unit to form a part of a multi-person household.

Family is a community of persons who are related as husband and wife (married couple) or partners in informal union, as well as parents (one or both) and their children.

Child (relative to a head, step-adopted child) is a person who, regardless of age, marital status, has usual residence in the household of at least one of the parents, and who has no marital status other than partner or one child in such household.

Members of household shall be enumerated as follows: but the head of household (head of household) shall be considered person who resides abroad more than a year; then the members of the nuclear family (spouse and children, if any); if several nuclear families live in the same household, then the members of one nuclear family shall be enumerated; and then the members of the other nuclear family, etc. Thus, the relationship and co-residence considered household members shall be enumerated.

After enumeration of all household members, the temporarily present persons shall be enumerated.

Temporarily present person is a person who has a usual place of residence in another settlement (BIR or abroad (where he/she has one household), but who stays in the place of enumeration to work, study or some other reason).

RELATIONSHIP TO HEAD OF HOUSEHOLD	CODE	ORIGINAL FAMILY NUMBER	SIFRA	FAMILY STATUS	CODE
Head of household	1	Members of the first family	1	Wife/husband	1
Wife/husband	2	Members of the second family	2	Partner in informal union	2
Partner in informal union	3	Members of the third family	3	Child of both	3
Daughter/son/adopted child/stepchild	4	EE	...	Mother alone with child/children	4
Mother/father	5	Person does not belong to the family	0	Father alone with child/children	5
Mother-in-law/father-in-law	6			Child living with one parent only	6
Granddaughter/grandson	7			Child of wife or partner only	7
Sister-in-law/brother-in-law	8			Child of husband or partner only	8
Grandmother/grandfather	9			Belongs to neither family	88
Sister/brother	10				
Other relatives (uncle, aunt/both mother's and father's side, etc.)	11				
Non-relatives	12				
No household member temporarily present person	88				

Column 10 - reason of absence
For household members who are temporarily absent from the usual place of residence write the code of absence taking into consideration whether absent person is in BIR or abroad. For household members who are present in the usual place of residence the Column 10 shall be left empty.

For persons temporarily present in the census place, write the code of reason of presence.

Reason of absence - for the persons in BIR

Work 1

Study 2

Family reasons 3

On a mission (official trip, on duty, military, etc.) 4

Reason of absence - for the persons who are abroad

Working abroad (for wage or domestic employment or in self-employment) 5

Working abroad (for wage or other) in a separate line of work, in some other of the same line, etc. 6

Stay in a house of a relative or other person abroad (in a house) 7

Stay in a house of a relative or other person abroad (in a house) 8

Study 9

On a mission (official trip, on duty, military, etc.) 10

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ANNEX II – ENUMERATION MONITORING ZONES

