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Steering Committee of the International Monitoring Operation on the Population and Housing Censuses in Bosnia and Herzegovina

Thirteenth Assessment Report

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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
ICEI	Department for International Cooperation and External Information
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

Introduction and Background

1. A Population and Housing Census shall take 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.

2. 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.

3. 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.

4. 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.

5. 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.

6. 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.

7. 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.

8. 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.

9. 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.

10. 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.

11. 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.

12. 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.

13. 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.

14. 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.

15. 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.

16. 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.

17. 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.

18. The thirteenth and present 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. Meryem 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.

19. The present assessment is based on the information reported at the meetings during the mission, and on some direct observations during the mission. As a consequence, the

comments and recommendations presented below are based on the understanding of the experts, and may not reflect the real situation. This report was prepared by the members of the Steering Committee on the basis of the reports of the international observers as well as their own observations, and was finalised by the Senior Census Expert.

20. The experts wish to express their 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 perfect organisation of the mission.

Executive Summary

21. The objective of the mission 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 international standards. 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.

22. Despite the resignation of many enumerators before the beginning of the operation and the late signature of contracts, the selection of fieldworkers was adequate. Many enumerators had a university degree and showed good understanding of the duties as well as strong commitment to their task. However, the training focused on the necessity to conduct the interview in an absolute neutral way, but did not give the enumerators the capacity to explain the goals of the census to the population or the meaning of some questions. In addition, it was observed that the enumerators rarely informed the population of its right to refrain from answering the questions on ethnicity and religion.

23. The Municipal and Cantonal Commissions functioned quite well and provided in most cases adequate support to the fieldworkers. Census materials were delivered on time.

24. The population was well aware of the census and eager to participate. However, some disinformation campaigns organised by political or religious groups, to tell people the “right” way of answering questions on ethnicity, religion and mother tongue, or to encourage citizens living abroad to come be enumerated in the country, polluted the conduct of the operation. Unfortunately, these campaigns and rumours were not contradicted by an efficient official communication campaign and systematic official reactions.

25. Very few incidents disturbing the conduction of the enumeration were observed, no more than are usual in a census, and these were immediately and appropriately handled by the Municipal Census Commissions (MCCs) as well as the statistical institutions.

26. Supervision of the enumerators’ work was conducted usually efficiently by municipal instructors and entity instructors who performed systematic controls of questionnaires.

27. The enumeration progress was monitored through the system CMIS at the level of municipalities and entities by relevant census bodies. It was observed that most of MCCs found this system very useful for daily monitoring and used actively during the enumeration.

28. Some misunderstandings of questions were observed, in particular when people were afraid of fiscal consequences of their answers to questions related to source of income or agricultural activities.

29. The main problem concerned people living abroad, either enumerated by a present member of a household, or coming to the country during the census period to be enumerated. The phase of data processing should help distinguish between the resident and non-resident population using the answers to questions 1 to 7, but also questions on the place of study or work, as some people were encouraged by some unofficial campaigns to answer to Q1-7 in a way to be considered as residents.

30. The release of preliminary results should occur less than 90 days after the census, using the information collected in the control forms. However, it should be noted that only the numbers of enumerated dwellings, households and persons can be released, and not any resident population figure.

31. The data processing phase should start in December, once the processing centre will have been set. The SC reiterates its strong recommendation to capture the questionnaires as such, and to define a set of decision rules to sort out whether an individual is part of the resident population or not, and to avoid any manual intervention on the questionnaires. This is the only way the SC will be able to assess the transparency of the process and the compliance with international standards and definitions.

32. The SC reiterates also its strong recommendation not to proceed with any kind of aggregation of answers related to ethnicity, religion or mother tongue during the data processing phase. All answers provided shall be kept in the final database. The SC will be particularly vigilant on this question.

33. In conclusion, the SC considers that despite some external pressure, the census enumeration was carried out smoothly and in accordance with the international standards. The SC will monitor in the next months the data processing phase to assess its compliance with international standards and best practices.

Assessment of the census preparation

CENSUS BUDGET

34. The mode of retribution was finally adopted before the enumeration as follows:
- a. Members of municipal commissions (MCCs) would receive 900 KM, or 1500 KM if the municipality has more than 60,000 inhabitants;
 - b. Municipal Instructors would receive 90 KM per enumerator they have to supervise;
 - c. Enumerators would be paid 2.2 KM per questionnaire (P1 or P2) in urban area and 2.5 KM in rural areas.
35. Transport costs would be covered only if the distance is more than 10 km from home.

Assessment

36. Decisions were made late and insufficient information given on the remuneration provided to candidates. As a consequence, 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, and even later in some cases. Main reasons were verifications of personal information that created considerable delays, as well as inappropriate bureaucratic rules. For example, it was not permitted for two enumerators to receive their remuneration on the same bank account, which created problems for enumerators belonging to the same family. The resignation of many enumerators during or after training created also difficulties in finalising the list of appointed enumerators.

37. The funds from the EU grant to pay field workers were not yet released two weeks after the end of the enumeration. It was expected to be able to pay the enumerators only during the month of November.

LOGISTICS AND PRINTING

38. Printing was conducted on time and delivery of material occurred before the beginning of enumeration operations. No particular complaints were received from municipalities about the delivery of materials.

39. The management of the reserve of questionnaires was not enough centralised and during the second week of enumeration, a certain shortage of questionnaires happened 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, only that some enumerators had to stop working one or two days.

40. The procurement of premises for Central place for census data processing was completed before the enumeration was completed and work started to prepare the place to receive the questionnaires after the enumeration and to prepare the working area for data processing. The SC could visit the place during the renovation.

Assessment

41. Despite a delayed start, the printing of census material was conducted in a satisfactory manner and delivery carried out on time.

42. The Central Place for data processing is adequate for storage and data processing. The place was ready to receive the material after enumeration, but work was still in progress to prepare the place for receiving data processing equipment. The centre should be ready, including equipment installed and tested, by the end of November.

Assessment of the census enumeration

43. To assess the census enumeration, a team of 27 observers was deployed in the country. The team was composed of international experts, or provided by National Statistical Offices of EU member states or independent experts. All of them had experience as census observers, most of them in the recent census of Kosovo*.

* This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo declaration of independence.

44. Observers were organised in 6 teams, under the leadership of a team leader, senior observer, in 6 zones (see map in Annex).

45. The role of the observers was: (a) to monitor the collection of census data and observing that it is carried out in accordance with the requirements of the census legislation and international standards; (b) to check whether the counting at all levels is in conformity with the statistical standards and whether the confidential nature of the individual data is fully safeguarded; and (c) to monitor the work of the enumerators, supervisors, municipal instructors, members of municipal commissions and other persons involved, in as much detail and in as many areas as possible.

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

CONDITIONS AND GENERAL ATMOSPHERE SURROUNDING THE CENSUS

47. 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 at home people usually absent from home during the weekdays.

48. 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.

49. However, this good will was going along with a lack of understanding of the real census scope and quite many confused opinions. 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.

50. Some pressure groups organised a disinformation campaign, calling people living abroad to come to be enumerated if they did not want to loose their properties and their citizenship. Some people engaged a lot of expenses to come, and when they were explained that they should use the Internet procedure they were very unhappy to have engaged such expenses for nothing.

51. The working atmosphere among the field staff has been in some way affected by problems in the management of contracting procedures. Municipal instructors and enumerators were complaining that they were working without contract and that the rules for expense reimbursement were unclear. No enumerator signed their contract before the start of the census, and many of them had to wait over 10 days to sign it. In addition, field staff had to advance the expenses linked to their job for travelling and for communicating by mobile with their instructors.

PARTICULAR INCIDENTS

52. 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 border to visit relatives, with census forms in their car; or in another case an enumerator was reported conduct the interview in a public area. All these cases were handled appropriately and timely by the Municipal Commissions and enumerators replaced immediately.

53. 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.

54. An NGO created a website named "Popis monitor" (<http://popismonitor.ba/>) to record incidents and complaints about 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.

CENSUS ORGANISATION

Establishment and functioning of all census bodies

55. All the Commissions were established and in general functioned well. All the municipal commissions were run very efficiently, and were well organised to face any difficulty or problem arising. Some MCCs even provided municipal funds to back up 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.

56. The rule of "ethnic representativeness" was respected, but resulted as 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.

57. 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.

58. The Central Census Commission worked well and held regular meetings prior 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

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

60. 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 few municipalities some enumerators had to interrupt their work, since it took about two days to receive new census forms.

61. The lack of questionnaires for enumerators during the collection of data was probably due to incorrect estimation of the number of households prior to the enumeration and to an

inadequate reporting from enumerators and follow-up by instructors. In a few cases the redistribution of questionnaires between enumerators was done spontaneously by field staff, increasing the likelihood of not properly recording the transfer of forms from one enumerator to another.

Provision of working space

62. 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 performance of all census staff

63. Entity instructors were all very skilled and professional. Most of the municipal instructors mastered census methodology and organizational processes well. However, their inexperience in census conduct led some of them to interpret methodological instructions in a personal way. For instance, a majority of instructors understood it so important to respect the right of respondents to self-declarations, that they forgot putting emphasis by their enumerators on the necessity to well explain certain rules and concepts. The description of household composition – and the enumeration of non-usual resident persons - was sometimes wrongly reported based on that reason.

64. 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 soon as they realized the quantity of work to be done, many resigned as they could not face at the same time the burden of lectures and of census enumeration work. 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 work. Municipalities faced the problem of lower skills of reserve staff, and had to put efforts on the follow-up of the newcomers.

65. 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 soon after 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. The enumerators hired from other municipalities were in some cases not trained as the others and had to be monitored more closely by their supervisors. This may have caused quality issues on the data collected by those enumerators. For these areas, it is suggested to develop appropriate quality control procedures in the data processing phases.

66. 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.

67. 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, 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 liked to have less theory and methodology but many more concrete examples.

68. In most cases, enumerators did not carry with them the methodological manual during the interviews, probably because it was not easy to consult quickly. With regard to the correct compilation of questionnaires, it was also observed that there was evidence of conflicting or confusing messages received from the Statistical Offices when the enumeration was already taking place (i.e. on how to enumerate people that moved from one place to the other; how to enumerate temporary absent people, etc.).

Performance of enumerators during interviews

69. Several modes of interviews were observed:

- a. The best enumerators asked the questions in a simple way, adapted to the characteristics of the interviewed people but respecting the census methodology. Roughly two out of ten enumerators fell into this category;
- b. Some interviewers were reading all questions and all possible answers exactly as written even if evidently it was not necessary; this was prolonging the interviews and was mostly confusing the respondents. Around one of ten enumerators observed were in this category. It may also happen that the presence of the observer led to this behaviour;
- c. The most frequent method used (about 7 out of 10 enumerators) was self-suggesting answers based on previous questions or knowledge of the household, asking only for confirmation of the answer from the respondent. Sometimes the “request for confirmation” was done after the answer had been already written down (for example, if the head of the household had certain citizenship, ethnicity, religion and mother tongue, there was a systematic assumption by enumerator that the other household members would have the same profile).

70. Enumerators frequently omitted to indicate the alphabet used in the questionnaire (missing cross in the box “Latin” or “Cyrillic”).

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

72. Ex-post filling-in of the summary data in P1, P2 and in the control book may have resulted in possible errors.

Communication among census participants

73. The communication between different actors of the census organisation in the municipalities (MCC members, municipal instructors, enumerators, state and entity instructors) usually went well. Where logistics allowed, municipal instructors and enumerators met on a daily basis – even twice a day at the beginning of the enumeration period – to review completed questionnaires.

74. The large percentage of young people among enumerators and instructors created a dynamic team-working atmosphere, which could easily be noted when they were together in the office. In some rural areas enumerators helped each other in several occasions.

75. Communication between local and central census levels, however, was usually negatively evaluated, mainly due to the lack of information about the provision of contracts and compensation for costs of transport and mobile phone use. Several MCCs also complained that instructions were provided very late and were sometimes inconsistent.

EVALUATION OF CENSUS MAPS

76. Maps were quite good even if some were out-of-date, and if the numbering of the buildings was not always correct. Nevertheless, the main problem was that some buildings were considered on the map as houses instead of multi-storey buildings, which resulted in an underestimation of the number of dwellings. In such cases, it was necessary to split the enumeration area and recruit more enumerators in order to complete the enumeration on time. The boundaries of EAs were in the large majority of cases easy to identify on the ground.

77. Most problems occurred in rural areas, where maps were sometimes in small scale and where it was difficult to identify buildings. However, since enumerators usually knew the area, they were confident to have covered their assigned territory. Furthermore, several maps were encountered that had numbers/codes printed superimposed. This made it impossible to provide the correct ID number for the buildings on which households were enumerated.

78. Some problems were noted in keeping track of the apartments visited in the multi-storey buildings due to missing apartment numbers on the doors.

79. Maps used in the field should be used in the near future by the statistical institutes and geodetic administrations to update their census GIS database, in order to make them consistent with the census data derived by the processing of census forms. Technically, this will be possible using the same ID codes reported on maps and census forms.

EVALUATION OF SUPERVISION

Supervision by municipal instructors

80. 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.

81. 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.

82. 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 be-

tween 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 that has 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

83. 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.

84. 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.

How filled census questionnaires were controlled

85. Filled-in questionnaires were checked in most cases on a daily basis by the municipal instructor as well as randomly with the entity instructor. However, it was hardly possible to control all filled questionnaires throughout the whole period since the instructors were responsible for quite big number of enumerators.

86. After completion of the enumeration, census questionnaires were fully controlled by the municipal instructors. In addition, municipal instructors controlled the order of the questionnaires according to the housing list given in the Control Form. Then, census questionnaires and other materials – ID card, maps, etc. – were put into the census boxes (blue boxes). It was observed in the field that preparation of census boxes was undertaken successfully for most of the EAs. However, in a few cases some mistakes regarding ordering of census questionnaires were found in the census boxes. In those cases, entity instructors called back the municipal instructors to correct the mistakes.

Functionality of census bodies in monitoring the enumeration and reporting about the progress of the enumeration

87. State and entity instructors together with MCC members followed in a regular manner the progress of the enumeration of households and persons particularly through the information entered and made available in the CMIS system. In addition, the Entity Statistical Institutions and the BHAS were monitoring the progress daily using the same reporting system.

Process and roles of census actors for collecting census materials

88. Most of the MCCs collected census materials in the period of 16-20 October 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.

89. In some municipalities that had many EAs, collection of census materials was undertaken with a different method. The census boxes that were controlled by the municipal in-

structors were stored at the home of the instructors until the end of the enumeration. And, the instructors were asked to bring the boxes for final controls before the boxes were sealed.

90. 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.

91. 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.

92. It should be noted that until the 17 October, none of the municipalities had information about the date of collecting census materials from the MCCs.

Assessment

93. The municipal and entity instructors played a key role in controlling census questionnaires and solving emerging issues appeared during the enumeration. Entity and municipal instructors, in most cases, were very skilled with good understanding of the census methodology.

94. Enumerators themselves had to cover the cost of sending SMS for reporting daily results of the enumeration. This caused dissatisfaction, as the enumerators were not informed when this cost would be reimbursed. Minor problems were observed in communication between the enumerators and the instructors particularly in rural areas because of shortage of telephone credits for the enumerators.

95. The enumeration progress was monitored through CMIS at the level of municipalities and entities by relevant census bodies. It was observed that most of 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.

96. For a number of EAs, systematic errors were observed in the control form particularly regarding the number of absent household members due to specific reasons related to the codes of 5, 7 and 9 (working abroad, staying abroad as a household member of a person working abroad, studying abroad) given in the list of persons in the P-2 form.

CENSUS COMMUNICATION ACTIVITIES

97. As constantly highlighted in previous SC reports, communication has been quite deficient in creating a favourable context around the census. Despite some workshops organised quite late for journalists, systematic media strategy to deliver official messages on the census was lacking. As a consequence, the floor was left to political or religious organisations to spread messages encouraging the population to answer the census in a twisted manner. For example:

- a. The organisation “Popis 2013” disseminated a leaflet to encourage citizen living abroad to come to BiH to be enumerated, explaining how to answer the questions 1 to 7 on the place of residence in order to be considered as permanent residents.

- b. The association “Prsten” was disseminating information as such: *“Participation in the census is a moral, citizen and patriotic duty of all Croats originating from BiH. By departure of a family member in BiH during the census days, with the data for other family members, or by providing data to a family member who lives in Bosnia, for all family members who live in Croatia or abroad you will be enumerated in the Census.”*.
 - c. The association “Bošnjaci” was disseminating information to the diaspora not to use the Individual form P-1IN, but to use Individual form P-1 and instructing that even persons living 30 years abroad, if they are coming for holidays in BiH should be considered as absent less than one year.
 - d. In addition different organizations and political parties with background in all three constitutive people in BiH used different occasions, media or disseminating leaflets in the field and giving exact instructions on how to answer the questions on ethnicity, mother tongue, religion and citizenship.
98. In the absence of law prohibiting the dissemination of such propaganda on the census, those practices were widespread. Rumours were also spread to citizen living abroad that they would lose their properties if they would not be enumerated as resident in the country. Such propaganda was not really contradicted by strong official messages on the confidentiality of the information and the absence of any link between the census and any administrative operation. The recommendation of the SC to send information to citizen living abroad via the consulates was not followed. As a consequence, it appeared that many of the members of the Diaspora were not properly informed about the possibility to be enumerated using the online questionnaire.
99. A press conference was held at the beginning and at the end of the enumeration. The coverage by the media was constant during the whole operation, which helped inform the public.
100. A website was accessible to the public to provide basic information about the census. Unfortunately, despite constant recommendations from the SC, the website was opened late and was not updated during the operation. No statistics on the number of visits was provided.
101. In general the population was very well informed about census from media and also from leaflets that were distributed, but not always from the official communication campaign. In terms of publicity, billboards were scarcely posted in most of the cities, but leaflets largely distributed. The main deficiency of the official campaign was that it was focused mostly on enumeration process and explanation on sensitive questions but not enough emphasized the importance of the census results for the future development of the country.
102. A hot line was set to answer the questions of the population, but was functioning only a few hours a day.
103. Very few refusals were encountered and in every case were handled according to the methodology, with intervention of the Municipal Instructor firstly and if need of the Municipal Commission.

EVALUATION OF CENSUS QUESTIONNAIRES

Understanding of questionnaires and suitability of design

104. 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.

105. In general, the size of the characters was very small, thus uneasy to read.

Questionnaire on household and dwelling (P-2)

106. 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).

107. 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.

108. 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.

109. The numbers 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. Same, especially in urban areas, for what is called "american kitchen" just delimited by a half-high wall.

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

111. The main difficulty in the P-2 form was data on agriculture, because some people feared any tax/fiscal consequences of declaring land and do not want to answer or to say what they have. 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.

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

Personal questionnaire (P-1)

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

114. Some municipalities recently changed their names. So in questions where the place is asked for, some respondents were using the old name of the municipality. This must be taken into account during the data processing phase.

115. 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).

116. 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.

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

118. 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 were living just before displacement.

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

120. 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.

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

122. 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.

123. 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.

124. 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).

EVALUATION OF ENUMERATION

Coverage of households and dwellings/housing units

125. 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 having interview when people were postponing the appointment for the enumeration. In some areas there were a quite important number of really vacant dwellings.

Under and over counting

126. There is possible over-counting of persons due to the wrong enumeration of non-residents as usual residents (especially people living abroad). The phase of data processing should help sort out between the resident and non-resident population using the answers to questions 1 to 7, but also questions on the place of study or work, as some people were encouraged by some unofficial campaigns to answer to Q1-7 in a way to be considered as residents.

127. The Post Enumeration Survey (PES) shall provide estimates of the coverage.

Absentee or difficult to reach households

128. Enumerators followed the procedure to leave a note with information on how to reach the enumerators to make an appointment, and also to pass 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

129. As already mentioned, the main problem concerned people living abroad. In some places people living abroad were registered as “temporary absent” and for the duration of absence (Q4) it was recorded the number of months elapsed since their last stay. For Q5, “how long the person intends to be absent”, the answer was in some cases the number of months until the person comes back 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.

130. In some cases pressure on enumerators was very hard and it was difficult for the enumerators to refrain from this pressure.

131. Persons who had moved to a new municipality because they had found a job there changed their permanent place of residence, even if they were only renting an apartment. This was not clear for all enumerators. According to the methodology, only students renting a flat for study had to be considered as temporary present.

Ethnicity, language and religion issues

132. As already mentioned, 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.

133. 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

134. All census field workers met were aware of the rules regarding confidentiality and were paying special attention to them. They all had signed a confidentiality statement. Enumerators were responsible of their questionnaires until they handed it over to their municipal instructor at the end of the enumeration. This practice raised concerns from some NGOs, but 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.

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

DAILY PROGRESS REPORT SYSTEM

136. An innovative approach agreed by the three statistical institutions for monitoring the fieldwork coverage was the use of SMS messages. Each enumerator was instructed to daily transmit via SMS basic information regarding the progress of their enumeration to a central database. The information sent was number of dwellings, number of households and number of persons enumerated.

137. A unique phone number to receive the SMS was provided by the Central Agency for Telecommunication.

138. The system was developed by a private company in Sarajevo, and installed and tested in the Agency just before the start of the enumeration. The developing and testing of the system happened at the very last moment.

139. A session on the use of the system was held during the training of the enumerators. Nevertheless, more detailed instructions for using the system was delivered to the enumerators just before the start of the enumeration.

140. Experiences with the SMS reporting system were mixed. In a large part of the municipalities it worked satisfactory, but in others it was not effectively used and, according to some MCCs also provided incorrect results. For areas without mobile phone coverage, SMS reporting was even more difficult.

141. In the early stage of the census the system, probably overloaded, was rejecting SMS. In other cases, it was rejecting messages sent from some specific mobile providers. But these problems were quickly solved in the first days of the enumeration.

142. Errors were sometimes observed in the SMS sent by the enumerators, mostly due to the confusion between cumulated figures and daily ones.

143. Cover of costs of SMS by enumerators themselves caused dissatisfaction among them and complains that they would receive reimbursement long time after enumeration.

Assessment

144. The BiH experience with the SMS based Daily Progress Report System was valuable and very useful to timely identify issues related to the coverage. During the observation, the SC used the figures collected daily via SMS in order to detect anomalies in the work done in specific areas. Those areas were timely communicated to the observers in the field, asking them to investigate the reasons why they appeared.

CENTRAL MONITORING INFORMATION SYSTEM (CMIS)

145. The Central Monitoring Information System (CMIS) allowed to store and manage the information related to the EAs, the staff assigned to them and their contracts, the labeling of the questionnaires and boxes with a unique barcode, the tracking of the materials to/from the fields and other logistic information that were crucial for the management of the fieldwork. The section for managing the status of the boxes and the section for the assembly of the boxes was finalized on time.

146. The association between EAs and ENs, MI Areas and MIs was finalized at the last moment. Two options were available depending on the accessibility or not of the relation between MI areas and EAs.

147. The preliminary results entry was developed and tested during the pilot census and - except some minor changes - remained the same.

148. As for the monitoring of the progress of the enumeration during the fieldwork, the system included a specific section for accessing the SMS data by the MIs and eventually enters the Daily Summary information for those areas in which it was not possible to use the SMS system.

149. The application was used by the Municipalities to store the information about the applicant for MCC positions, their evaluation and the final MCCs compositions. The system also supported the generation of the MCC members' contracts. A similar approach was used concerning the selection of MIs and ENs.

150. Several MCCs complained about the fact that instructions on the use of CMIS for the selection of the ENs were provided very late and subsequent instructions were sometimes inconsistent. Nevertheless, in general, the recruitment of census staff did not pose great difficulty from the point of view of the CMIS system.

151. It was reported that from time to time some MCCs had problems with the Internet connection but, in general, these were temporary issues. Many MCCs expressed their satisfaction with the CMIS Internet application.

152. As for the monitoring of the progress of the enumeration during the fieldwork, MIs in general were reviewing the data sent by SMS and eventually entered the figures for those areas in which it was not possible to use the SMS system. Nevertheless, this part of CMIS was finalized only a few days before the enumeration and the MIs were not always completely aware of all the functionality available.

Assessment

153. The development of a well-planned field operations management structure had a great impact on the level of quality of data collected, facilitated the monitoring of enumeration progress and reduced costs (i) by planning accurately materials and staff resources needs in each area, and (ii) by limiting unforeseen events during the general enumeration. Since a population census is a large time-critical project, with many interlocking operations, the use of a modern Census Management System is quite relevant.

154. Despite some delay on the development of the system and some bugs that led to several interventions and adjustment, the CMIS system adopted in BiH proved to be effective and a real help in organizing and monitoring all the activities behind the fieldwork itself. Finally, the CMIS system and the data stored in it will also be used as a base to properly organize and manage the data processing operations.

Post Enumeration Survey (PES)

155. The Post Enumeration Survey (PES) was in its final preparation phase at the time of the mission. Data collection of the PES will be carried out from 2 to 10 of November in 250 EAs, 84 in RS 141 in FBIH, and 15 in District Brcko.

156. The field operation of the PES will be observed as well by the SC and will be assessed in the report of the 14th mission.

Data Processing

157. Census materials were transported and stored in the Central Processing Centre in East Sarajevo between 18 and 21st of October.

158. During a meeting at the BHAS, the methodology group explained that it was planning to have checks and corrections of the census questionnaires performed manually. The SC expressed strong reluctance towards such a manual approach.

Recommendation

159. The SC strongly advises against data checks and data editing to be performed manually. Not only is this leading to a non-transparent approach for the population and stakeholders in the country but this might also lead to a situation where the SC cannot assess the fairness and correctness of the editing anymore, by the fact that it will be impossible to reproduce the process from a raw dataset and therefore impossible to state that no interference have occurred in the data processing and editing. The SC should have the possibility of running again the automatic controls on the database to check to arrive at the same results.

160. In addition, the SC reiterates its strong recommendation to NOT proceed to any aggregation of answers related to the three sensitive questions: ethnicity, religion and mother tongue, and to disseminate the results corresponding to each answer declared by the population.

161. Careful control has to be exercised over the quality of incoming data. Computer based data checks are recommended in large statistical exercises like the census as they provide consistency in the way incoming data is handled. Furthermore, given the sensitivity of personal data, as well as to the importance of ensuring quality of the results the census, the SC believes that it would be also in the interest of the credibility of the statistical institutes to perform the data checks and editing in a clear and transparent manner via reproducible automatic rules. Furthermore, implementing automatic, computer based checks leads to a more efficient data processing as compared to a manual approach, subject to biases.

DATA SECURITY POLICY

162. The main sources of issues in the Census data processing are: personal data disclosure, intentional/malicious alteration of data and intentional/malicious loss of data.

163. Protection of personal data is a central issue. Personal data disclosure violates Laws on Census and Protection of Personal Data. Personal data should be processed according to strict rules of individual data protection and used only for the essential statistical purpose planned within the census. During the processing of census data, names could be useful for two main aims: identify duplicate records and perform the record linkage of the census individual data with the PES records.

164. Intentional/malicious alterations of data and intentional/malicious loss of data also represent an important issue because they can heavily affects the Census results, raising a question of Census regularity.

165. The aim of the document *Data Security Policy for Supporting the Population and Housing Census, 2013 - V 1.1* prepared by the BHAS is to provide Data Security Policy that will cover the risks connected to all the phases of the Census data processing and provide policies for minimizing them.

Assessment

166. Disclosure of personal data can partially happen in different phases of the data collection and data processing but the two main situations in which this can happen systematically are: i) accessing the questionnaire images; ii) accessing the digital data in the Census database.

167. The solution proposed to avoid situation of type i) is to store the images on an encrypted partition so that they will be automatically encrypted on writing and decrypted on reading. Such partition will be transparent only to Census applications used for processing the data, in the sense that only these applications will be able to access the decrypted images. System administrators and any other user will not have access to the decrypted images.

168. The solution proposed to avoid situation of type ii) is that 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 the application, not stored in database. Such a solution should prevent access to personal data in database from System administrators and any other users.

169. The SC considers that both solutions are efficient and adequate, provided that at the end of the data processing the images will be destroyed and the personal data will be removed from the Census database. Indeed, since the paper questionnaires will be archived, there is no need to maintain any digital version of them for historical reasons. Concerning the personal data, it should be underlined that theoretically they could be kept but detached from the Census database and destroying any possible keys that could make it possible to join them back to the other Census data.

170. Intentional/malicious alteration of data and intentional/malicious loss of data can partially happen in different phases of the data collection and data processing but the main situations in which this can happen systematically are: a) alteration of questionnaire scanned images; b) alteration of data in the Census database; c) alteration of data through Contingency Control Application or through automated correction of logical errors.

171. The solution proposed to avoid situation of type a) is to create a hash for each scanned image. Hashes will be stored at a different location from the one where questionnaire images are stored, again in an encrypted partition. This measure enables checking, at any moment, if stored images are identical to the ones that were processed. The encrypted partition where the images will be stored should prevent deletion and alteration and only System administrators will have access to the decrypted hash images. In addition every access to the hash images should be logged.

172. It has to be mentioned that intentional/malicious modifications of the contents of the questionnaires can happen also before the scanning, modifying the paper questionnaires. The SC strongly recommends not to perform any manual checking/modification on the paper questionnaires before the scanning, but to first capture the questionnaires as they are. All the checks should be performed in automatic or semi-automatic way after the scanning.

173. The solution proposed to avoid situation of type b) is to prevent any changes to the database not made through use of the application, and if not prevented, then discover them. For this reason, an additional column in each table of the Census database should be created in which will be stored a hash calculated with a secret key over the complete record. Any Census application will re-calculate the hash with the secret key over the complete record and compare it with what is stored in the hash column. This will enable to discover any changes in Census database made outside of applications. In addition database must log all changes to a location where database administrator cannot change or delete them.

174. The solution proposed to avoid any situation of type c) is to agree on the set of rules defined for contingency controls and for automated correction of logical errors at least with a group of professionals coming from the three statistical institutions. Scripts for automatic correction of logical errors must pass substantial testing before being approved for use. The algorithms shall be tested on real census material coming from the whole country. Every change of census data performed through any application (manual or automatic) must be tracked into the Census database and should be reversible.

175. It should be noted that the SC must be able to assess, and eventually re-run on the initial Census database the set of rules defined for contingency controls and for automated correction of logical errors. Concerning the correction of logical errors, the SC still strongly support the use of more sophisticated statistical methods for data correction, like the Fellegi-Holt approach and the related imputation methods.

176. In conclusion, the SC considers that the Data Security Policies illustrated in the document *Data Security Policy for Supporting the Population and Housing Census, 2013 - V 1.1* are, as a whole, accurate and efficient. Nevertheless, the SC underlines the importance of its remarks, especially for what concern points 168, 171 and 174.

ANNEXES

ANNEX 1: MONITORING ZONES

