

We count because you count!

Population census | Luxembourg

STATEC

Institut national
de la Statistique et
des études économiques

General census of the population on 8 November 2021:

WE COUNT BECAUSE YOU COUNT!

This publication is the first in a series, which will present the results of the 2021 population census in the coming months.

The 37^e population census in the Grand Duchy of Luxembourg took place from 8 November to 5 December 2021. For the first time, Luxembourg organised a census combining data collected through questionnaires and administrative data in order to reduce the statistical burden on citizens. To this end, in a first step, people were invited to participate online. 48% of the respondents opted for this method of response. For the other half of the respondents, 1,841 enumerators, appointed by the municipalities, distributed and collected the questionnaires from households over several weeks. In the end, 643,941 people were counted as residents on 8 November 2021.

A little history

Population censuses are both the oldest and most widespread statistical operations. They are also characterised by their exceptional scope and complexity. While the first censuses were more like enumerations, from the beginning of the 20th century onwards they have become the basis for an indispensable documentation on the socio-economic structure of the country.

The 2021 census, initially scheduled for 1^{er} February 2021, had been postponed due to the COVID-19 health crisis. It was initially re-scheduled for 1^{er} June 2021, but was finally held on 8 November 2021. This census is the 37^e general census since Luxembourg became an independent state, i.e. since 1839. Before 1960, censuses were conducted at a rather irregular pace; from a three-yearly to a five-yearly cycle, with intermediate censuses. In 1952, an amendment to the electoral law set the maximum interval between two censuses at ten years. In 1973, a directive of the Council of the European Communities stipulated that "Member States shall carry out a population census during the period between 1^{er} March and 31 May 1981". In Luxembourg, the census date was set at 31 March 1981. Subsequent censuses took place on 1^{er} March 1991 and 15 February 2001. Since 2011, a

European regulation requires Member States to conduct a census once every ten years. The first one under this regulation was on 1^{er} February 2011.

Legal basis and purposes of censuses

The legal basis for the general census of 8 November 2021, is first of all the Regulation (EC) No 763/2008 of the European Parliament and of the Council of 9 July 2008 on population and housing censuses. Its purpose is to establish "common rules for the decennial provision of comprehensive data on population and housing every ten years". Article 5 of this regulation states that "each Member State shall determine a reference date. The reference date shall fall in a year specified on the basis of this Regulation (reference year). The first reference year is shall be 2011". Luxembourg had therefore to organise a census in 2021.

In addition to European legislation, article 4bis of the amended communal law of 13 December 1988, which has since been repealed, states: "In order to determine the number of members of the communal council as-signed to each commune, a census of the population of the Grand Duchy of Luxembourg shall be carried out at least every ten years. The date and procedures for this census are laid down by Grand Ducal regulation. The census is carried out on the basis of the usual residence, which is the geographical place where the per-son to be counted usually lives." The 2021 census was decreed by the Grand Ducal regulation of 30 July 2021.

The organisation of this census is also based on Article 2 of the law of 10 July 2011 on the organisation of the National Institute for Statistics and Economic Studies. Indeed, STATEC's mission is to carry out population, housing and building censuses, the date and modalities of these censuses being fixed by grand-ducal regulation. Following the modification of the communal law (see previous paragraph), it will also be written into the STATEC law that the population censuses carried out by the National Institute for Statistics and Economic Studies will be done in collaboration with the communes.

In addition to the legal-administrative purpose, population censuses provide indispensable socio-economic information, in particular on the age structure, sex, nationality, marital status, profession, level of education and housing conditions of the population. The main advantage of the censuses is undoubtedly their capacity to provide reliable and complete data for the various territorial units (cantons, communes, localities) including, for the first time, for the European grids¹ which divide the European continent into portions of one km².

Census data facilitate the forecasting of needs for urban planning, schools, nurseries, hospitals, old people's and nursing homes, housing, etc.

The different actors

Population censuses are organised, conducted, monitored and compiled by STATEC. However, as they are very complex and large-scale operations, collaboration between different actors is essential.

The main actors of the 2021 census, besides STATEC, were:

- The **Communes**, responsible for the census in the field and the supervision of the enumerators;
- The Syndicat des Villes et Communes luxembourgeoises (**Syvicol**), which contributed to the drafting of the Grand Ducal regulation;
- The State Information Technology Centre (**CTIE**) regarding the Internet census ;
- The National Commission for Data Protection (**CNPD**) regarding data privacy;
- The **different ministries** that collaborated in the formulation of certain questions;
- Finally, the most important actor: the **population**, which provided answers to the many questions.

¹ <https://ec.europa.eu/eurostat/fr/web/gisco/geodata/reference-data/grids>

STATEC would like to thank all the actors who contributed to the success of this census. **We count because you count!**

A more modern census

For the 2021 census, Luxembourg has moved from a so-called "traditional" census, i.e. a census where all the information is collected through questionnaires, to a "combined" census. This new type of census combines data from various administrative registers with data collected through questionnaires. In addition to the data received via the online or paper questionnaire, STATEC collected:

- A number of demographic data (from the National Register of Natural Persons);
- For persons exercising a profession, their sector of activity (provided by the Centre Commun de la Sécurité Sociale);
- A number of data on buildings and dwellings (from the Buildings and Dwellings Register held by STATEC).

This additional collection is based on the use of personnel number or address. Once STATEC has built up its statistical database, these identification data (name, address, personnel number) will be deleted and no statistical processing will be carried out on these identification variables. These data are necessary only to ensure completeness.

In its session of 22 June 2018, the Government Council agreed with the census procedure proposed by STATEC.

In January 2020, STATEC informed the Minister of the Interior of the date of the census. As the last census in Luxembourg took place on 1^{er} February 2011, the census was initially set for 1^{er} February 2021, in compliance with the legislation in force. This census was then postponed to 8 November 2021 following the COVID-19 health crisis.

In a joint circular signed by the Minister of the Interior and the Minister of the Economy on 30 March 2020, the municipalities were informed of the date and practical details of the 2021 census.

A new questionnaire

The content of the census questionnaire was elaborated in collaboration with different ministries. As Luxembourg is a multilingual country, the questionnaire was available in five languages: Luxembourgish, French, German, English and Portuguese.

While the vast majority of the information collected is regulated by European legislation, questions of national interest are also present in the questionnaire. The questions on the use of languages, which were asked for the first time in 2011, have been included also into the 2021 questionnaire. The new topic in the 2021 questionnaire is that of disability, following a request from the Ministry for the Family.

For this census, STATEC has modernised both the electronic and the paper questionnaire.

While in the 2011 census the electronic questionnaire was a PDF file that had to be downloaded and then returned once completed, the 2021 questionnaire was directly accessible from any web browser and computer device via guichet.lu.

The design of the paper questionnaire was also completely revised in order to modernise it. In addition to the questions, the questionnaire contained all the information related to the census (explanations, help ...). The questionnaire was also reworked to :

- best guide respondents according to their answers to the questions;
- facilitate the computer processing of paper questionnaires².

A process disrupted by the Covid-19 health crisis

Initially, STATEC wanted to organise this census on 1^{er} February 2021. However, the preparation of the census within STATEC and the municipalities was

² For more details, see the section "How is the information collected by STATEC processed?"

strongly disrupted by the health crisis. Also, for fear of other possible waves (which turned out to be accurate), STATEC decided to postpone the census to 1er June 2021. As the conditions for a good preparation of this census were not yet met, it was decided with Syvicol to post-pone, once again, this census to 8 November 2021.

A second adaptation was to rely on digital solutions. All households were invited by post to participate in the census electronically via MyGuichet.lu. No prerequisites were required except for an Internet connection. A major communication campaign was organised to encourage this type of response.

For those who preferred to answer by paper questionnaire, the latter was distributed by enumerators. In order to limit the risk of COVID-19 contamination, STATEC put in place various measures. In contrast to previous censuses, the enumerator had to put the paper questionnaire in the letterbox and not hand it out. The enumerator was also no longer able to help households with difficulties in completing the questionnaire in order to ensure maximum social distancing. Households could, however, call STATEC's telephone hotline or contact them by e-mail.

Regarding the collection of the questionnaires, different solutions were proposed:

- return the questionnaire to the municipality ;
- return the questionnaire to STATEC ;
- collection of the questionnaire by the enumerator.

The first two solutions were to be preferred in order to avoid the enumerators having too much interpersonal contact. Nevertheless, the enumerator could, if necessary, make secure contact with the household (collect the questionnaire at the door, etc.).

A major campaign to raise awareness

A press conference was held on 20 September 2021 in the presence of the Minister of the Economy, Franz Fayot, and Mr. Serge Hoffmann, Vice-President of Syvicol and Mayor of the municipality of Habscht.

On 8 November 2021, an online information session explaining how to take the census online was also conducted by STATEC.

A major national awareness campaign was also launched in October 2021. This campaign, which involved all media (written press, radio, television, Internet, cinema, advertising posters, etc.), was conducted in the five most widely spoken languages in the Grand Duchy.

Finally, a lottery organised in collaboration with guichet.lu was used to reward online participation. Among all the households that responded via guichet.lu, ten households were drawn to receive a prize (tablet or headset) to thank them for their online participation. Congratulations to the lucky winners!

The key role of municipalities and enumerators

The census in the field was the responsibility of the 102 communal administrations (art. 11 of the Grand-Ducal regulation of 30 July 2021 prescribing a general census of the population, dwellings and buildings of the Grand Duchy on 8 November 2021). The latter defined census districts in accordance with the rules provided by STATEC. Each census district was under the responsibility of an enumerator.

The responsibility for recruiting these enumerators, who were responsible for distributing and collecting the questionnaires, also fell to the municipalities.

Online training sessions for the municipal staff who supervised the enumerators were provided by STATEC. This was the first time that these training sessions were conducted online, due to the health crisis. Specific training sessions were also available online for the 1,841 enumerators. STATEC thanks them for their participation and commitment.

As the municipalities were responsible for the fieldwork, STATEC sent the various census documents to the municipalities in the weeks preceding the operation. This large-scale work was carried out by an external service provider, as STATEC did not have the logistical means to do it.

Although the census was initially only accessible electronically via guichet.lu, it was also possible to participate via a paper questionnaire. The distribution of the paper questionnaires by the enumerators took

place from 22 to 26 November 2021 only for households that did not respond online. These households had the opportunity to respond to the census until 5 December or until 28 November 2021 if they changed their mind and preferred to respond online. From 6 December 2021 until 15 December 2021, enumerators collected paper questionnaires. During this collection, they did not have a mandate to verify the data, nor to check the validity of the answers. They could only enter a household if they were expressly invited by the respondents. Enumerators, as well as any person working on the census, were required to sign a declaration of statistical confidentiality. Failure to respect this professional secrecy could result in the sanctions provided for in Article 458 of the Penal Code.

The electronic questionnaires were received daily by STATEC (secure daily transmission by the CTIE between 8 and 28 November 2021). In order to avoid possible double counting, STATEC communicated to the communal administrations and the enumerators some data concerning the households that had responded electronically, by means of a web platform. This way, the municipal staff and enumerators knew exactly who had already responded to the census and that it was no longer necessary to contact these households. For reasons of confidentiality, some people who had taken the census by means of a paper questionnaire preferred to return the completed questionnaires directly to STATEC. In order to respect the wishes of these people, STATEC only transmitted to the municipalities and enumerators the data necessary for checking the completeness of the enumeration in the field, which was their responsibility.

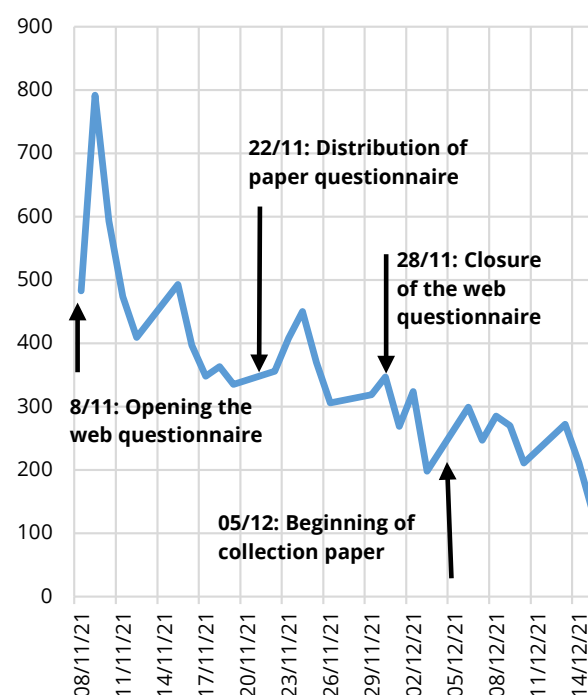
The transmission of the paper questionnaires by the municipalities to STATEC was to be done by the end of January 2022. The first municipality submitted the questionnaires on 15 December 2021. On 8 February 2022, the census documents of the last municipality reached STATEC. The college of the mayor and aldermen were responsible for paying the allowances to the enumerators. These advances were subsequently reimbursed by STATEC on the basis of a credit entered in the State budget.

[SEE SUMMARY DIAGRAM OF THE 2021 CENSUS PROCESS](#)

A service to help the population

In order to help the population to answer the census questions, a free hotline was operational. From 8 November to 15 December 2021, all citizens could obtain additional information from Monday to Friday, from 8 am to 6 pm. The hotline was very successful (9,961 calls). It was especially at the beginning of the census (792 calls on 9 November 2021) and more generally at the beginning of the week that respondents sought STATEC's help.

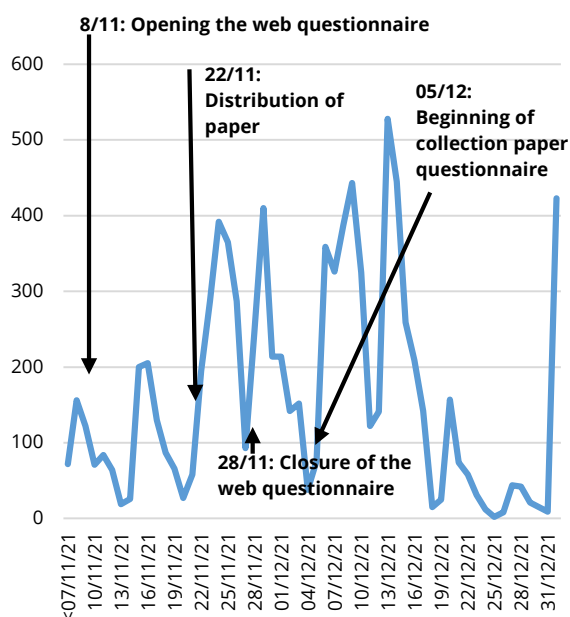
GRAPH 1: FREQUENCY OF THE FREE HOTLINE, 8 NOVEMBER TO 15 DECEMBER 2021



Source: STATEC

In addition to the telephone hotline, STATEC had also set up an e-mail helpdesk. STATEC received a total of 9,119 e-mails. On average, STATEC received 203 e-mails per day between 8 November and mid-December. The peak was reached on 13 December 2021 with 528 mails processed.

GRAPH2: NUMBER OF E-MAILS RECEIVED AND PROCESSED DURING THE 2021 CENSUS CAMPAIGN



Source: STATEC

In addition, a website (rp2021.lu), dedicated exclusively to the 2021 census, provided a multitude of practical explanations on how the census was conducted. In addition to the direct access via guichet.lu, it was also from this site that people wishing to answer electronically could access the questionnaire. The electronic version of the questionnaire was developed by the Centre des technologies de l'information de l'État (CTIE) in collaboration with STATEC. The possibility of responding via the Internet was limited to the period from 8 to 28 November 2021. Like the paper questionnaires, the electronic questionnaire was available in five languages (Luxembourgish, French, German, Portuguese and English).

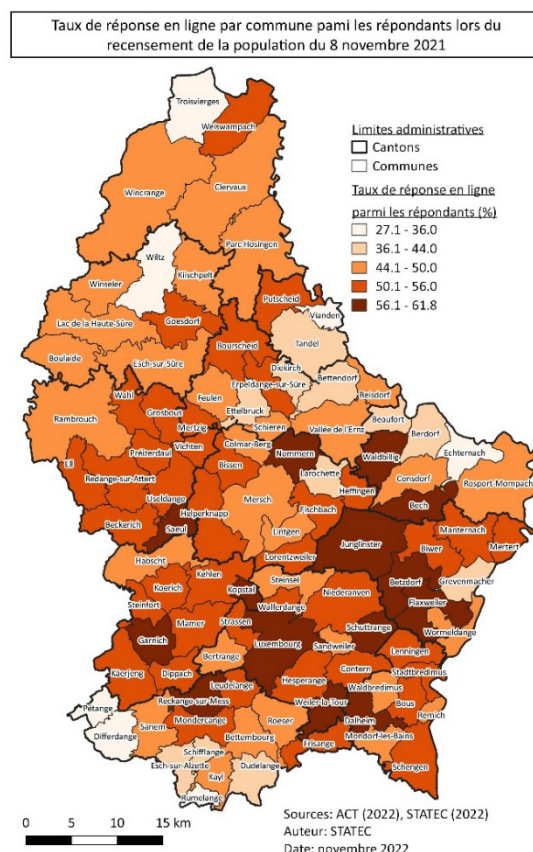
48% of respondents opted for the online solution

Among the respondents, the online response rate fluctuates between 27.1% in Differdange and 61.8% in Weiler-la-Tour. The online response rate is approximately 48% at the national level. One in two respondents therefore opted for the Internet solution.

At the municipal level, the highest rates of online participation are found in the municipalities in the east of the country. The lowest rates are found in the

urban municipalities of the south-west and in the north-east of the country between Larochette and Vianden. With the exception of the City of Luxembourg, the online participation rate is particularly low in the municipalities encompassing the country's urban centers (municipalities in the south-west, Grevenmacher, Echternach, Ettelbruck, Diekirch, Vianden and Wiltz).

MAP 1: ONLINE PARTICIPATION RATE AMONG 2021 CENSUS RESPONDENTS (PROVISIONAL DATA)



An analysis of the socio-demographic profile of online respondents will be carried out in the course of 2023, when all the data necessary for this analysis is available, to determine whether there are differences between online and paper respondents.

Almost 4 out of 5 people responded to the population census

The participation rate at national level is around 79%. This rate is slightly lower than for the 2011 census (85% participation).

There are strong disparities at the communal level: the participation rate varies from 57% in Luxembourg City to 100% in the commune of Putscheid. The communes with the lowest participation rates are, overall, the most populated communes, such as Luxembourg City and Esch-sur-Alzette³.

The decline in census participation and the disparities between municipalities can be explained by six main factors:

1. Health context of Covid-19 :
 - a. Census date in the middle of the fourth wave;
 - b. New methodology implemented because of the pandemic: reduced contact with households;
2. Less involvement of some municipalities and in particular of some enumerators in carrying out the census in the field;
3. The coverage of some communal registers may not be optimal and would lead to the enumeration of persons who may no longer have their usual residence in Luxembourg, which would automatically increase non-response;
4. The lower interest of society in STATEC surveys is a result of a high "statistical burden" due to the low number of existing administrative registers accessible to STATEC;
5. Some technical problems during the filling in of the electronic questionnaire on Guichet.lu which may have discouraged some respondents;
6. As a result of the new design of the questionnaire, some people may have confused this document with other more commercial documents and therefore not have noticed that it was about the census.

One of the most important factors in the participation rate is the direct contact with people in order to make them aware of and familiarise them with the census. Thus, the municipalities that took care to contact their

residents directly have a participation rate of almost 100%. Conversely, in large municipalities where the work of enumerators is more difficult, the participation rate is much lower. At the national level, this decrease in the participation rate is mainly due to the low participation of the inhabitants of the country's two large municipalities, namely Luxembourg-City (57% participation) and Esch-sur-Alzette (68%).

In view of the six elements mentioned below explaining the lower participation, STATEC exceptionally decided not to sanction non-respondents due to the particular context in which this census took place.

In order to partly remedy these shortcomings, STATEC has recourse to various administrative registers that will be interconnected. Thus, STATEC has recourse to the National Register of Natural Persons (RNPP) so that the entire population is taken into account. For non-respondents, some data can be collected, mainly demographic characteristics. Similarly, STATEC will use IGSS data to determine whether or not the person has a profession. Finally, for non-respondents, STATEC will also be able to use certain variables from its register of buildings and dwellings.

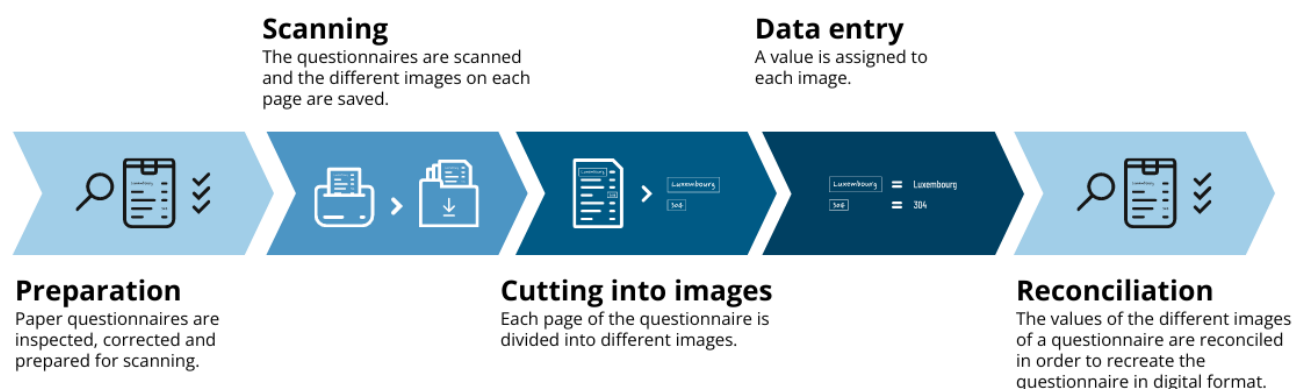
This problem of the participation rate will continue to exist in the future and may become even more acute. In order to (1) achieve a participation rate close to 100% and (2) drastically reduce the costs of the census, STATEC would like to organise censuses in the future based solely on administrative registers according to the model applied for decades in the Nordic countries. This approach is becoming increasingly common in Europe. In 2011, 7 countries in the EU-27 were already using this type of census and now 10 countries are doing so. This number is expected to increase further by 2031, the next census year.

In order to guarantee a transition to a fully register-based census, the Luxembourg Government will have to ensure that STATEC has access to the administrative registers of the different administrations as fore-seen by the STATEC law and that it has the possibility to interconnect these registers.

³ It is noteworthy that these two municipalities were already among the municipalities with the lowest response rate in the 2011 population census.

FIGURE 2 : SCANNING DES QUESTIONNAIRES PAPIER

Source : STATEC



In addition, the Luxembourg State will have to set up new administrative registers in the coming years. At present, there are many issues not covered by administrative registers:

- housing conditions;
- education level;
- composition of households and families;
- occupation.

To this end, STATEC supports, by actively participating in the working group, the Ministry of Housing in the future creation of the National Register of Buildings and Housing, which should make it possible to know the housing conditions of people.

Once all these conditions are met, Luxembourg will be able to conduct censuses based entirely on administrative data.

How is the information collected by STATEC processed?

After receiving the questionnaires from the 102 municipalities (about 110,000 paper questionnaires), STATEC carried out the first checks on the questionnaires, which consisted of verifying the consistency between certain questions and facilitating the scanning of the questionnaires.

In order to increase the confidentiality of the data (the questionnaires containing names and addresses) and to reduce the costs of data entry, the different questionnaires were scanned in order to obtain a digital version of these questionnaires for data entry. Once the questionnaires were scanned, each questionnaire was cut into different images (each questionnaire was cut into 999 images).

Images relating to closed questions (e.g. "yes/no" questions) are almost 100% (99.8%) automatically recognised within STATEC, while for those where a numerical response (e.g. date of birth) is expected, automatic recognition amounts to 94.9%. These answers are therefore no longer entered manually. For answers to open-ended questions (profession, parents' country of birth, etc.) where a handwritten answer is expected, these images are sent to a data entry firm for transcription. The encoding work took place from June to December 2022.

Each image has a unique number that allows them to be linked together in order to recompose the entire questionnaire. This recombination was only possible for STATEC and not for the data entry company.

On the basis of the files provided by the data entry company, a database was created to which data from the electronic questionnaires and data from the available administrative registers were added. On this data-base, plausibility and consistency checks between various variables will be carried out throughout 2023 in order to publish the results.

In addition to these controls, STATEC will carry out the coding of households and "family nuclei"⁴, a long and complex operation that requires significant human resources. STATEC will also have to codify occupations and branches of activity according to the international nomenclatures in force.

Publication of results

For the analysis of the census data, a collaboration between STATEC and various research centres will be set up. A steering committee composed of members of these research centres and STATEC, concerning the exploitation of the 2021 population census data, is being constituted. In the coming months, various publications aimed at the general public, but also at the public specialising in demographic issues, will be produced. At the same time, statistical tables on the various census topics will be published on the Statistics Portal. In the medium term, Luxembourg census data, as well as census data from other European countries, will be accessible on the Eurostat website.

The next planned publication will present the spatial distribution of the population per km². This level of spatial analysis is one of the major novelties of this population census. This analysis is framed by Regulation (EU) 2018/1799 of 21 November 2018 on the establishment of a temporary direct statistical action for the dissemination of selected topics of the 2021 population and housing census geocoded according to a 1 km² grid⁵.

Geographical representations of the results of the population census will also be available on the Luxembourg geoportal⁶ and this in collaboration with the administration of the Cadastre and Topography.

FOR MORE INFORMATION

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⁴ The family nucleus is understood in the narrow sense, i.e. two or more persons living in the same household whose relationship is that of husband and wife, partners in a registered partnership, partners in a consensual union or parent and child. The family thus consists of a couple without children or with one or more children, or a single parent with one or more children. This notion of family limits the

relationship between children and adults to the direct (first degree) relationship between parents and children.

⁵ For more details: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Population_grids

⁶ <https://www.geoportail.lu>