

The 31st Population Census Conference

National Population and Housing Census

Colombia

November / 2022



GOBIERNO DE COLOMBIA



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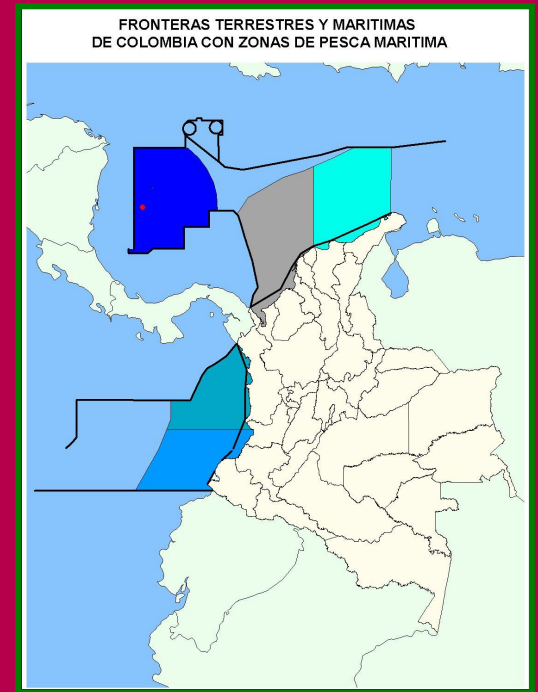


1. Generalities CNPV 2018



General characteristics of CNPV 2018

- By law or habitual residence.
- Extended period for phased application.
- With virtual filing (1st time) and face-to-face.
- With georeferenced coverage control and route management.
- With control for the closing of interviews.
- With identity document for quality control and thematic expansion.



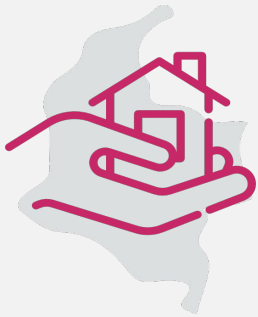
CONTINENTAL COLOMBIAN ZONE: 1'141.748 Km²
Of which 18.060.87 Km² are bodies of water (1.6%)
MARITIME COLOMBIAN ZONE: 928.660 Km²

TOTAL: 2'070.408 Km²

Is defined by three big mountain system, seas and rainforests.
Presents different thermal levels.
Creating different geographical zones.,



Key Concepts



● Housing

"INDEPENDENT AND SEPARATE" space inhabited or destined to be inhabited by one or more persons.

● HABITUAL RESIDENT

He (or she) is the person who inhabits most of the time in a housing, although at the time of the interview he is temporarily absent (6-month temporality). This person **DOES NOT HAVE RESIDENCE HABITUAL** elsewhere.

● SURVEYED SUITABLE

He (or she) is the household head, or the spouse, or a household member 18 years old or older, who knows the information and is able to provide it.

● Household

It is a person or group of persons, relatives or not, who occupy all or part of a housing. Additionally, the group budget are shared and generally, they share meals.

● Household Head

He (or she) is the habitual resident recognized as such by the other members of the household. A home must always have one and only one household head.

QUESTIONNAIRE STRUCTURE



| I. LOCATION (for all questionnaires) | II. HOUSING (only for the first household in the housing) | III. HOUSEHOLD (for all households) | IV. PERSON (according to age group) |
|---|---|--|--|
| 13 Questions | 7 Questions | 11 Questions | 36 Questions |
| <ul style="list-style-type: none"> • Department • Municipalities • Urban and rural areas • Spatial division for collect variables. • Ethnic territories (Indigenous territories and afro descendant communities lands) | <ul style="list-style-type: none"> • Type of housing • Occupation condition • Household quantities. • Building materials • Public services • Disposal of rubbish. | <ul style="list-style-type: none"> • Tenancy • Number of rooms • Water to prepare food. • Defunctions • Economic activities • Situation of forced displacement • Household structure. | <ul style="list-style-type: none"> • Sex • Age • Identification • Migration condition. • Ethnicity • Health • Disability condition • Child care • Education • Labor situation • Marital status • Fertility |



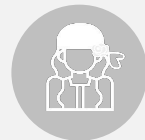
El cuestionario se construyó con participación activa de diversos actores



8 agencias
internacionales



23 entidades
del orden nacional



Organizaciones
representantes de
grupos étnicos

Mesa Permanente
de Concertación
y otros Pueblos

Pueblo Rrom
o gitano

Espacio Nacional
de Consulta Previa,
Comisión VII

Cuestionario



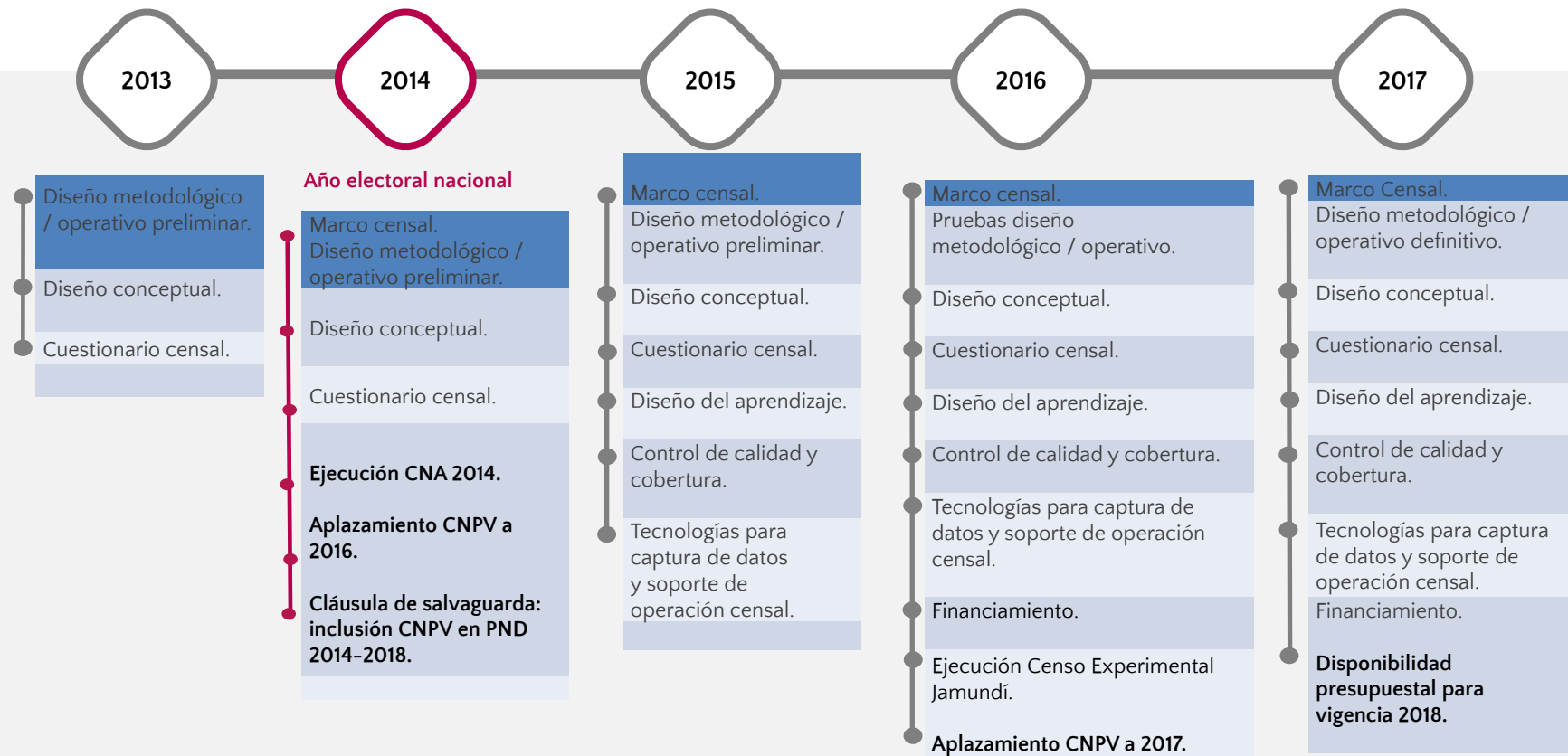
Expertos
nacionales
e internacionales



6 universidades
nacionales

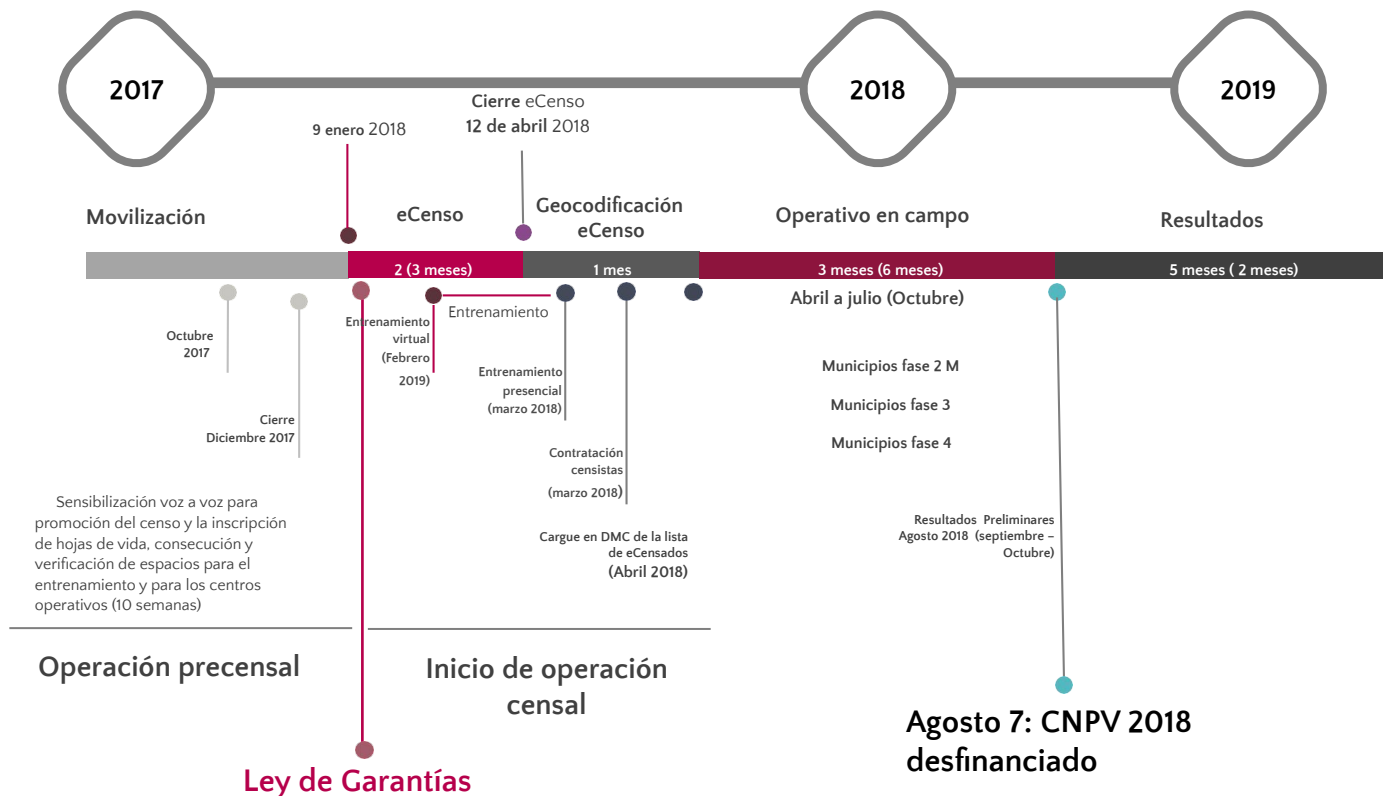


Planeación, organización y preparación del CNPV 2018



Línea de tiempo - ejecución del CNPV 2018

Censo previsto para 2015-2016 que actualizó el **marco estadístico urbano a 2015** y aprovechó el marco rural del CNA 2014.





Tiempo de recolección

Between January 9 and October 30, 2018 (E-census and face-to-face), the CNPV operation was carried out. The face-to-face collection phase was extended for the following reasons:

- Climatic factors.
- Public order.
- Resistance from social actors.
- Administrative issues related to personnel and transportation.
- Greater number of units to visit with respect to those scheduled.
- Conflicts or rejections of the census in the bordering areas of some municipalities.
- Low daily returns, especially from the ethnic personnel hired (indigenous and Afro-descendants) who demanded the extension of the census.



Situaciones con impacto sobre el cronograma de ejecución del CNPV

Año electoral nacional 2018



Contratación

- Cerca de 10 mil personas rechazaron contratación.
- Más de 9 mil renunciaciones.



Restricciones de seguridad

280 novedades reportadas.



Sin fondos

Al 7 de agosto el CNPV estaba desfinanciado. Requirió inyección de presupuesto de \$9 mil millones (Ministerio de Hacienda y Crédito Público).



Ola invernal

88 municipios afectados.



Alerta Hidroituango

14 municipios afectados.



2. Information collection



Collection Methods

Virtual



Electronic eCensus

Face-to-face – door by door



Swept



Route



Mixed

Operational methods and strategies

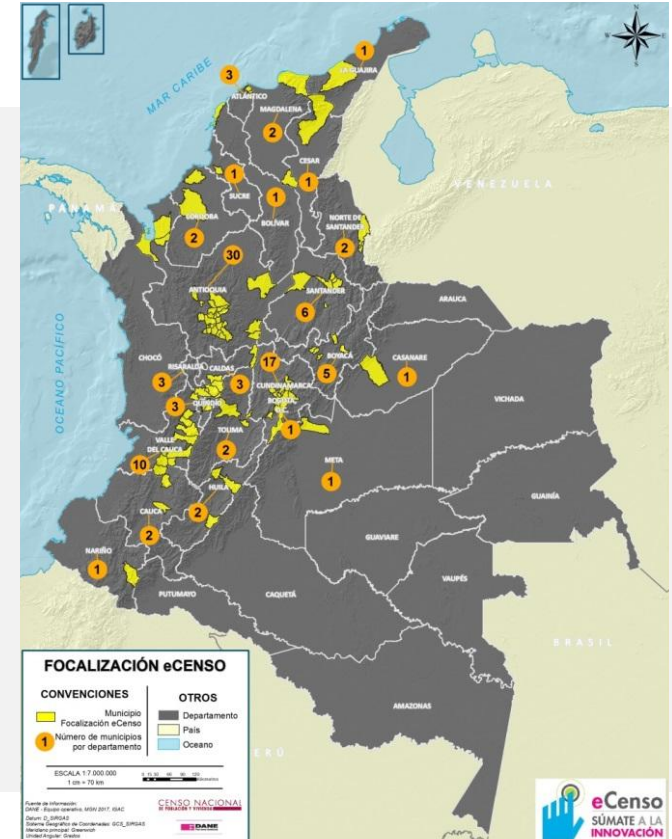
| Method | Strategy | Expected number of dwellings | Scope |
|-----------------------------|--|------------------------------|---|
| Electrónico 11,1% | → eCenso → | → 1.546.339 → | Estimated: 20% of homes in cities with more than 40% connectivity index. (100 cities). |
| Barrido 86,8% | → Dwelling to dwelling → | → 12.119.461 → | 1099 head towns. 975 rural áreas in towns. |
| Ruta 1,1% | → Route tours → | → 158.585 → | 91 towns in its rural áreas y 23 head towns. 300 route polygons.. |
| Focalizado 0,1% | → Special lodging places (LEA) → | → 11.329 → | Penitentiary Center-INPEC; institution for the protection and preventive boarding for children and adolescents -ICBF; barracks, military garrison; Police command, Police station -MinDefense; home of peace; Colombian Agency for Reintegration. |
| Mixto 0,9% | → Special Collection Areas Route areas Swept areas → | → 131.899 → | 56 municipalities in their rural area. |

Call: operational personnel cannot access the areas to be surveyed. Places recognized by the community are defined and operating personnel and means are available for the population to come to provide their information. Prior and wide dissemination is required.



eCensus

- First time it was applied in Colombia.
- Collection through web application.
- Inclusive (visual and auditory functional diversity).
- Phase prior to the face-to-face census – 3 months.
- Available to the entire population and national coverage.
- Mandatory for officials, servants and contractors of the public sector – Decree 1899 of 2017.
- Prioritizes the 100 municipalities with the greatest connectivity in the country.





Ventajas del eCenso



1. Fácil

La herramienta guía a los ciudadanos y presta las ayudas necesarias para que pudieran diligenciar el cuestionario sin dificultad.



2. Seguro

Cumple con todos los estándares de seguridad para que la información de los ciudadanos estuviera protegida.



3. Rápido

Según experiencia de hogares eCensados, a un hogar de 4 personas le tomó apenas 30 minutos diligenciarlo.



4. Accesible

Lo pudieron diligenciar personas con limitaciones visuales o auditivas.



5. Adaptable

Se podía diligenciar en cualquier dispositivo electrónico: computador, tableta o teléfono inteligente.



6. Flexible

Se puede escoger el momento o momentos, el lugar y la hora para diligenciarlo de manera personalizada.



Difficulties presented with the eCensus



- Low technological skills of people to fill out electronic questionnaires.
- Fear of using technological tools and connectivity problems.
- Fake news chains about information security (system vulnerability).
- Work online with the page of the National Registry of Civil Status to validate the identity card of the person who fills out the eCensus.



Estrategias para superar dificultades del e-censo

01

Ampliación de la capacidad de la infraestructura informática que soportaba el eCenso y mejora de la plataforma (software).

02

Mejoras al desempeño del cuestionario electrónico con acompañamiento del Ministerio de las TIC.

03

Estrategia de comunicación pedagógica para explicar conceptos claves.

04

Generación de información frecuente sobre el eCenso, su desempeño y avances.

05

Conformación del Puesto de Mando Unificado (CCOC, ColCERT, CCP, CSIRT, MinTIC, MinDefensa).

06

Ampliación de la capacidad de respuesta del servicio de atención al ciudadano con voluntarios del DANE.



Métodos de Recolección presenciales



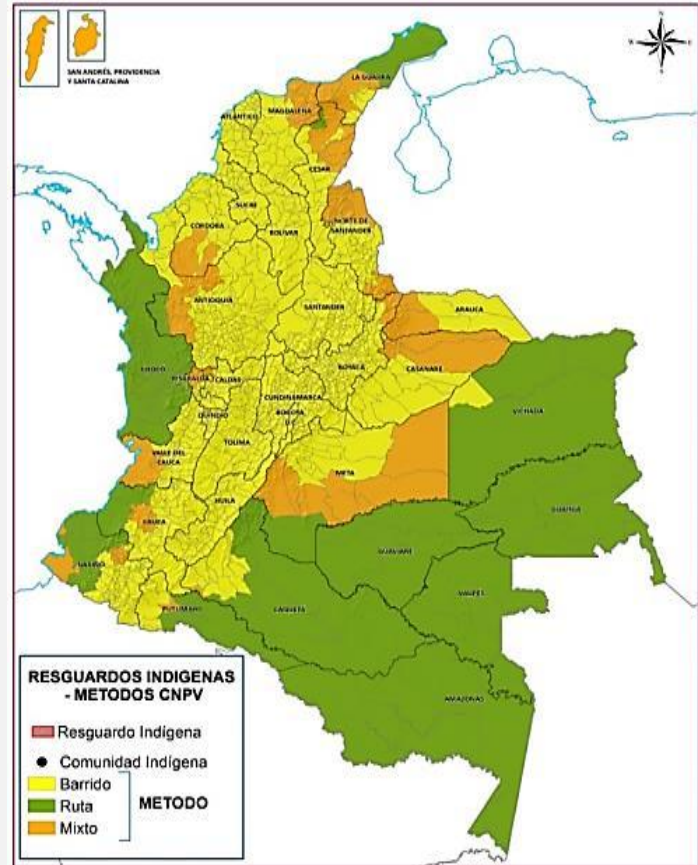
Face to face: door by door
975 towns



Routes
91 towns



Mixed
6 towns





Collection strategies in route context areas



- Using the route method, the work groups travel through the rural area of some municipalities and non-municipalized areas (or departmental corregimientos) characterized by access difficulties, low population density and large territorial extensions.
- In this method, the work team leaves the operational center, and only returns to it at the end of the collection period.
- In general, the routes are structured along a river and its tributaries, bridle paths or trails, generating an area of influence that contains each of the communities and existing population settlements.



Collection strategies in route context areas

Design of the routes: social cartography with the participation of the ethnic population

Social cartography is a methodology that serves to build knowledge collectively about the geographic, social, economic, historical, and cultural space of a community.



In the operational design of the Census, social cartography was used **to obtain information that allows locating and characterizing the communities or settlements of indigenous peoples and lands belonging to black communities, as well as non-ethnic settlements located in the work area**, through their geographic location, their demographic characteristics and basic infrastructure, and identify the access routes, means of transportation and average costs to get there.

The indigenous and Afro-Colombian ethnic groups participated in these exercises.



Collection strategies in route context areas

Design of the routes: social cartography, with the participation of the ethnic population



Social mapping provides information on:

1. Location of the communities.
2. Expected population.
3. Access roads.



Follow-up to the field operation

Field controls

- Analogous formats from the census taker to the departmental coordinator.
- Messaging service when a survey is closed.
- Analog cartography for control of operational areas.

Center Level Controls

- Coverage and theme control with previous censuses, projections and records.
- Control of coverage with the Geovisor (expected units).
- Route management control with locator.

El CNPV 2018 incorporó innovaciones tecnológicas que permitieron el seguimiento permanente de la cobertura operativa y de la calidad de la información recolectada en todo el país



Reporte del censista por SMS cada vez que terminaba una entrevista en un hogar.



Control diario del avance con la georreferenciación de la información.



Consolidación de la base de datos y control de su calidad en simultáneo con el avance diario de la operación.





Based on the information transmitted, the geographic viewer shows the coverage by UCU and UCR, which are displayed in three colors:

- **green color:** UCU and UCR where a number equal to or greater than the reference units of the census framework has been registered.
- **orange color (class 1 and 2 only):** UCUs that have a lower number of transmitted observation units, compared to the reference units of the census framework.
- **color gris:** UCU and UCR that do not have reported information.

Geographic viewer

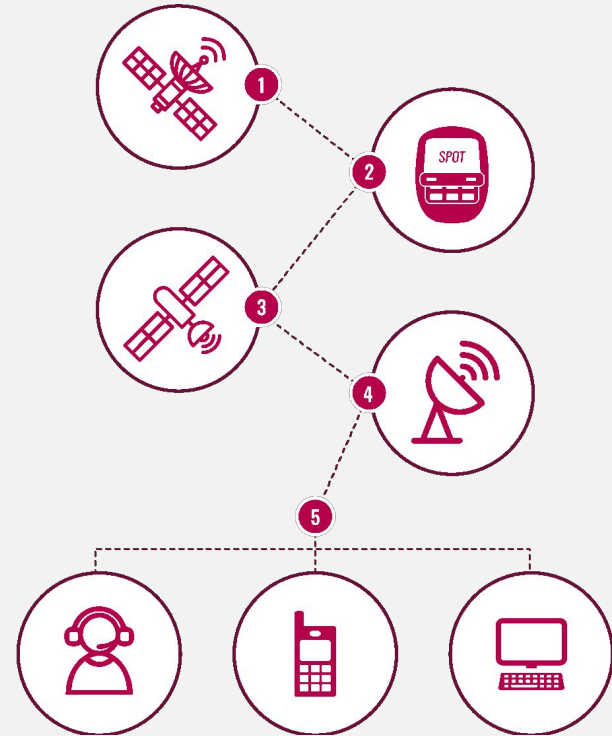




Tracking device (SPOT GEN 3) for routes

The location and tracking device is a lightweight tracking element that transmits location coordinates in real time thanks to GPS satellite technology, in addition to offering the option of messages via satellite from remote locations anywhere in the world, in places where there is no mobile phone coverage.

The SPOT was used to control and monitor the work teams that took a census in route areas, and to receive alerts in emergency situations.





3. Framework Update National Geostatistician

DANE updated the census cartography of the entire country and established that Colombia has 504,303 blocks

Framework Update National Geostatistician



Elaboración y codificación de 3.479.042 unidades de cobertura y 37.300 áreas operativas.



Visit and cartographic update of 1,122 municipal seats and 6,467 populated centers.



Integration of cadastral information, users of public services, review of satellite images with the census framework for municipal capitals with more than 50,000 inhabitants.



Integration of the results of the 2014 National Agricultural Census.



Update of the directory of Special Lodging Places - LEA (2015).



In joint work with ethnic communities, DANE complemented the census framework through the social cartography methodology

Framework Update National Geostatistician

18.015

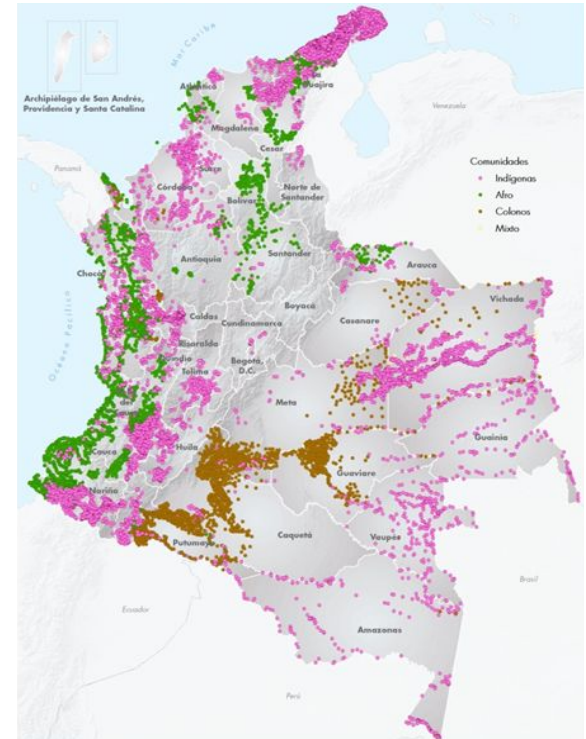
ethnic communities
coded in 2017.

Incorporation and codification of the special regulation areas:

825 indigenous reservations.

192 collective territories of black communities.

347 protected areas in 2016.





Mapping



- There was cartography for each operational role, it was necessary to insist on its use for monitoring and control of coverage of the census operation.

- There were more units to visit than those scheduled; for this reason it is necessary to have the cartographic update.

- The digital cartography that was included in the DMC served as a location point for the census taker and supervisor working group so that information could be collected within the operational area or corresponding coverage unit without leaving its limits.

- In the same way, this served as the basis for the coverage control with the expected dwellings, although in many cases these were out of date or did not correspond to the definition of dwelling units.



Learned lessons



- Despite the fact that the DMC displayed the areas to be worked on, it was necessary to have physical maps to locate the sectors, sections and blocks to be worked on, because the size of the screen made it difficult to locate the block or rural sector to be censused.
- There must be updated census cartography in time close to the census, digital and analog.
- It is necessary to evaluate the cartography and its ideal scales for the urban and rural component.
- There must be permanent technological updating at the class level, especially urban.



4. Ethnic differential approach



Ethnic differential approach

Actions carried out by the institutions in conjunction with the ethnic groups that adapt, based on cultural differences, the projects, activities or measures implemented in ethnic territories, achieving greater equity among the population.



Inclusive process, consulted, agreed on the methodological route, protocolized and with the corresponding institutional instance, with each of the country's ethnic groups

Black, Afro-Colombian, Raizal and Palenquera population

193 collective territories of black communities titled in **10** departamentos and **51** towns.

- 3** Meetongs with Espacio Nacional.
- 9** Meetings with Comisión VII.
- 33** Meetings with departamentos.

Indigenous population

111 indigenous people in **24** departamentos / primarily rural areas.

- 1** Routes with Mesa Permanente de Concertación.
- 3** Nacional level
- 4** Independents routes.
- 169** Regional and local meetings

Gypsy or Rom population

11 kumpanias

- 2** Meetings with Comisión de diálogo para el pueblo Rrom.
- 11** Meetings with las kumpanias.



Achievements of the Consultation and Agreement process with ethnic groups – CNPV 2018



1. Inclusion in the census questionnaire of questions with an ethnic focus

Related to self-recognition, territoriality, native languages, housing characteristics, traditional medicine, as well as categories that inquire about indigenous people and clan for indigenous people, Vitsa and Kumpania for gypsies or Rom.

In total 8 questions with focus for ethnic groups.

37. ¿De acuerdo con su cultura, pueblo o rasgos físicos . . . es o se reconoce como:

1. Indígena?

1.1 ¿A cuál pueblo indígena pertenece . . . ? Código

Nombre del pueblo indígena □ □ □

1.2 ¿A cuál clan pertenece . . . ? Código

Nombre del clan □ □

Continúe con la pregunta 38

2. Gitano(a) o Rrom?

2.1 ¿A cuál vitsa pertenece . . . ? Código

Nombre de la vitsa □

2.2 ¿A cuál kumpania pertenece . . . ? Código

Nombre de la kumpania □ □

Continúe con la pregunta 38

3. Raizal del Archipiélago de San Andrés, Providencia y Santa Catalina? Continúe con la pregunta 38

4. Palenquero(a) de San Basilio? Continúe con la pregunta 38

5. Negro(a), mulato(a), afrodescendiente, afrocolombiano(a)? Continúe con la pregunta 39

6. Ningún grupo étnico

1. Inclusion in the census questionnaire of questions with an ethnic focus

3. Territorios étnicos

1. Sí

a. Resguardo indígena *Código*

Nombre del resguardo indígena

b. Territorio colectivo de comunidad negra *Código*

Nombre del territorio colectivo de comunidad negra

2. No

13. ¿La vivienda se encuentra en el interior de un territorio étnico?

1. Sí

1. ¿Está en un territorio ancestral o tradicional indígena?

Nombre del territorio

1. ¿Está en una parcialidad o asentamiento indígena fuera de resguardo?

Nombre de la parcialidad o asentamiento

1. ¿Está en una reserva indígena?

Nombre de la reserva indígena

2. ¿Está en un territorio ancestral o tradicional de comunidades negras no tituladas?

Nombre del territorio

3. ¿Está en un territorio ancestral racial del Archipiélago de San Andrés, Providencia y Santa Catalina?

Nombre del territorio

2. No

1. Inclusion in the census questionnaire of questions with an ethnic focus

38. ¿... habla la lengua nativa de su pueblo?

1. Sí → Continúe con la pregunta 38.1

2. No
↳ **2.1 ¿La entiende?**

1. Sí
2. No] → Continúe con la pregunta 38.1

38.1 ¿... habla otra(s) lengua(s) nativa(s)?

1. Sí

¿Cuántas?

2. No

43. Para tratar ese problema de salud, ¿... qué hizo principalmente:

1. Acudió a la entidad de seguridad social en salud a la cual está afiliado(a)?

2. Acudió a un médico particular? (general, especialista, odontólogo, terapeuta u otro)

3. Acudió a un boticario, farmacéuta, droguista?

4. Asistió a terapias alternativas? (acupuntura, esencias florales, musicoterapias, homeópata, etc.)

5. Acudió a una autoridad indígena espiritual?

6. Acudió a otro médico de un grupo étnico? (curandero, yerbatero, etc.)

7. Usó remedios caseros?

8. Se autorrecetó?

9. No hizo nada



2. Participatory work with ethnic communities, to obtain information for the design and preparation of the Census, through the methodology of social cartography



In the operational design of the CNPV 2018, social cartography was used to obtain information that made it possible to locate and characterize communities or population settlements that are mainly ethnic, as well as non-ethnic settlements located in the work area, through their approximate geographic location, their characteristics demographic and basic infrastructure, and identify the access routes, means of transportation and average costs to get there.



2. Participatory work with ethnic communities, to obtain information for the design and preparation of the Census, through the methodology of social cartography

Framework Update National Geostatistician

18.015

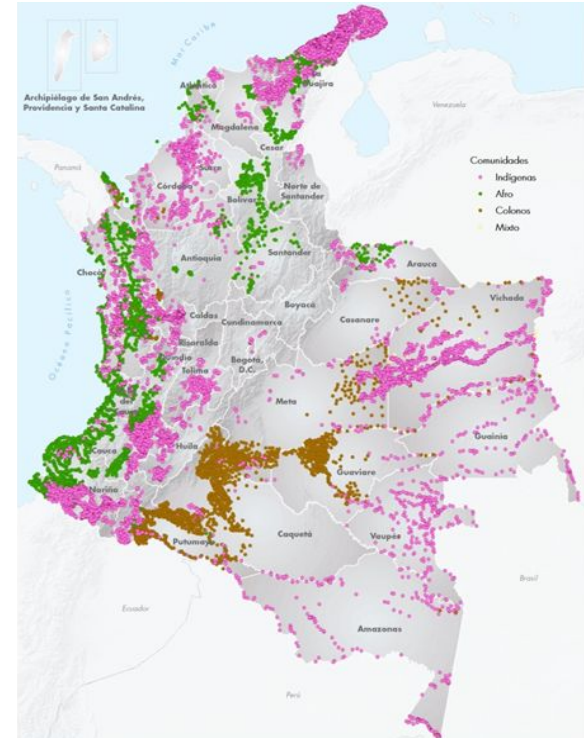
ethnic communities
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3. Hiring ethnic staff in Census operational roles

Participation of ethnic groups in the roles of census taker and supervisor

3.130 personas indígenas (censistas y supervisores).

3.524 personas afro (censistas y supervisores).

36 personas gitanas o rrom (censistas).

Flexibility of the profiles of census takers considering cultural, social and educational particularities of rural and urban areas.





4. Subscription of Agreements with Ethnic Organizations

- For the first time, **association agreements** were signed with indigenous and Afro ethnic organizations to manage the mobility, personnel, and communication of the CNPV 2018 in their territories.

CONVENIOS INDÍGENAS

- **4** partnership agreements with national indigenous organizations to manage mobility, Census staff in their territories and communication
- **2** additional agreements with the communication component exclusively.

CONVENIOS AFRO:

- **4** Association agreements with organizations proposed by the National Space for Prior Consultation to manage mobility.
- **1** Agreement to manage mobility and communication.



7. Infraestructura tecnológica

CNPV 2018



eCensus

Criteria for software selection: principles of scalability, availability and security of the solution.

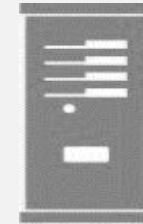
eCensus



Citizen computer equipment.
Obfuscation and minification of
javascript.



SQL Injection
Request XSS
Hardening



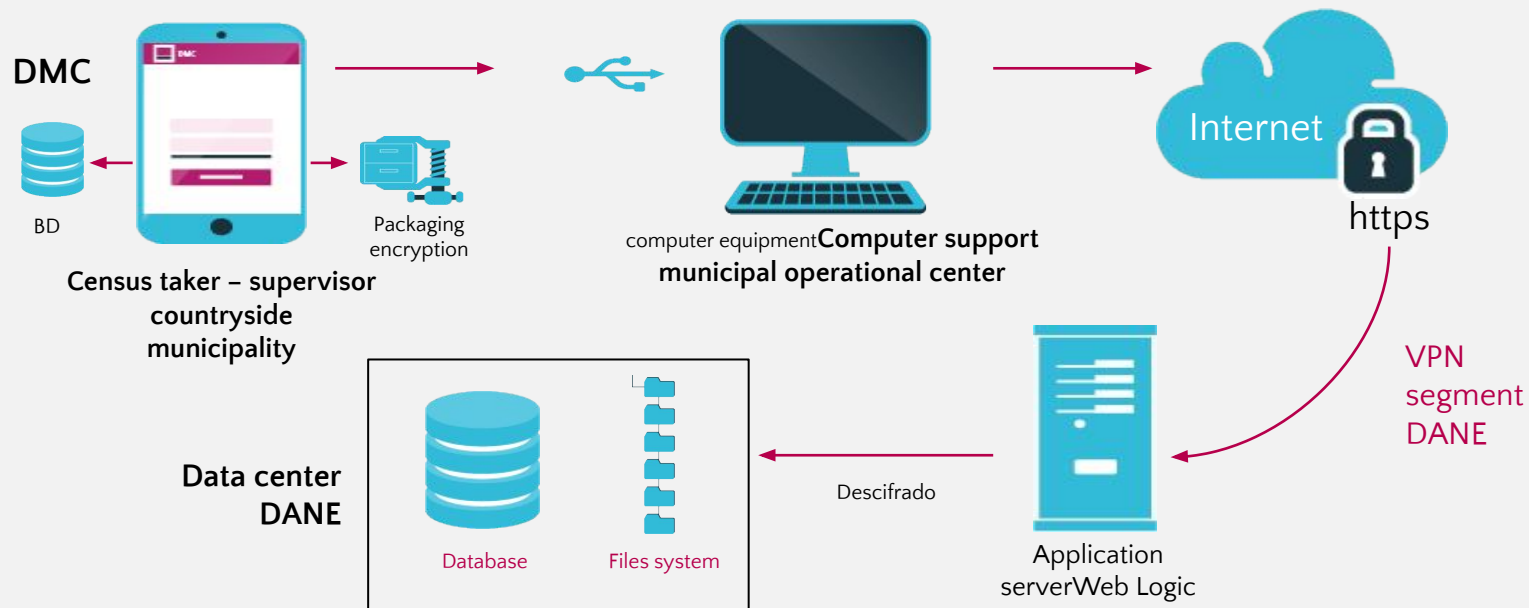
Application server
Apache ModSecurity



Database

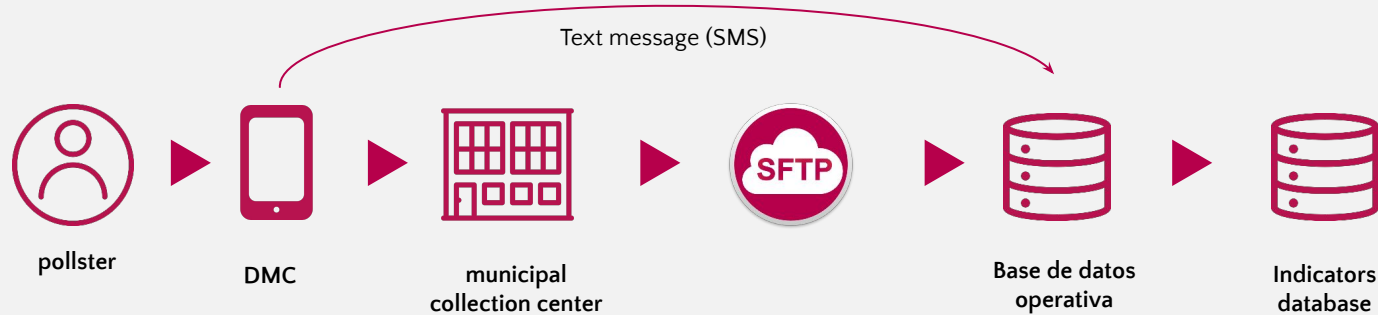
DANE data center

Technological infrastructure: face-to-face





Indicators database



- At the end of the surveys, an SMS confirming the completion of the survey was sent to the operational center, with information on the number of people and households registered, as well as their georeferencing.
- This made it possible to compare the information that was transmitted from the collection centers against that received from the SMS.

Problems in the transmission of information Due to some connectivity problems, not all SMS arrived.

- The collection centers did not transmit all the information from the DMC, but the information was recovered thanks to the back-ups of the DMC.
- Problems in transmission via SFTP due to platform capacity.



Use of mobile devices catch (DMC) in the census.



- ◉ With the use of the DMC and its digital cartography, the units observed in the field were located, allowing the georeferencing of the results.

- ◉ In the collection of information, the errors of population flows and universes that can occur in the field are controlled with the collection of information in analogous forms.
- ◉ Variables can be controlled according to information consistency (validation rules).
- ◉ Typing errors that occur with the use of similar forms are controlled.
- ◉ The database is obtained more quickly and quality controls of the information collected and correction with the source can be carried out.



Uso de dispositivos móviles de captura (DMC) en el censo.



- Representaban ahorro en el tiempo de recolección, sin embargo persistió la resistencia especialmente para el aprendizaje por parte de las personas convocadas por las organizaciones étnicas que preferían trabajar en papel, a pesar de que tuvieron talleres de capacitación exclusivamente para ellos.
- Algunos DMC presentaban deterioro y terminación de su vida útil, por tanto se solicitó su cambio.
- El clima muy cálido o húmedo conllevó a que se presentaran dificultades para su uso.
- Se presentaron problemas de seguridad en algunos municipios, resultando en robos de DMC.

Lecciones aprendidas

- El liderazgo de jefes municipales y coordinadores permitió contar con DMC de repuesto, mientras llegaban los reemplazos solicitados.
- Se hace necesario revisar la capacidad de los DMC, en términos del requerimiento del aplicativo de recolección, las capas cartográficas, la activación del GPS y las validaciones de consistencia.



Reporte de los datos



- ◉ La oportunidad en la transmisión de la información recolectada tuvo varios inconvenientes, especialmente en aquellos municipios sin conectividad, a pesar de ser considerados con alta conectividad, la señal solo se conseguía alrededor de la Alcaldía Municipal o en las afueras del municipio.
- ◉ Algunos módem enviados para transmisión no eran compatibles con los computadores enviados, lo cual ocasionó represamiento y retrasos en el envío de información.

Recomendación

- ◉ Realizar pruebas de envío y recepción de información, para asegurar que la información transmitida llegue completa al servidor que recibe e igualmente se descargue completa.



8. Expert committee

CNPV 2018



Expert committee



The Committee of Experts was established on November 1, 2018 at the invitation of the General Directorate.

- Objective: to evaluate the CNPV 2018 process, the coverage and quality of the information collected, and make recommendations for future censuses.
- Work methodology: analysis of the documentation and databases available from the CNPV 2018, data from previous censuses and household surveys carried out by DANE and other sources external to DANE, collection of undocumented information on the CNPV 2018 through interviews with the team technician who participated directly in the design and execution of the census operation.
- Support from the Census and Demography Directorate, Systems Office, Geostatistics Directorate.
- CELADE/UNFPA Mission Advisory between June 10-14, 2019.
- Product: evaluation report.



Recommendations

- 1 DANE must have a permanent technological update plan.
- 2 The CNPV cannot continue to be used as the setting to propose new methodologies or collection systems.
- 3 The census must be carried out in a total of more or less three months maximum (United Nations).
- 4 DANE must seek to comply with the defined periodicity of a maximum of ten years between censuses.
- 5 Having postponed the census from 2014 to 2018 made us lose the opportunity to have a census per decade in the years ending in "5". This impasse can be overcome by starting with a strict planning of State policies that plan to carry out the censuses in the strict periodicity as of the 2020 census round.
- 6 Budget planning should be carried out through different governments in order to have the entire budget in each census year.
- 7 To mitigate the risk of data loss and allow better control of the operation, it is necessary to use phones with data plans.

The 30th Population Census Conference

National Population and Housing Census

November / 2022



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