

Integration of Statistical and Geospatial Information in Central America

Séptima Sesión
UN-GGIM: Americas



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REGIONAL COMMITTEE OF
UNITED NATIONS
ON GLOBAL GEOSPATIAL
INFORMATION MANAGEMENT
FOR THE AMERICAS

Project Purpose

To integrate statistical and geospatial information in Central America, building upon the regional efforts of the:

- Pan American Institute of Geography and History (PAIGH)
- United Nations Statistics Division (UNSD)
- United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM)
- Regional Committee of the United Nations Committee of Experts on Global Geospatial Information Management for the Americas (UN-GGIM: Americas)
- United Nations Economic Commission for Latin America and the Caribbean (ECLAC)



Project Objectives

- **Partnership** - Coordinate and develop collaboration between the seven countries of Central America
- **Planning** - Develop a plan for the integration of statistical and geospatial information in Central America that can be utilized for future integration projects
- **Innovation** - Identify problems and priorities of the region and methods to analyze and display integrated statistical and geospatial information
- **Integration** - Conduct technical workshops and create integrated statistical and geospatial products to inform decision makers



Project Assumptions

Geospatial Base and Data Structure

- This project builds on the work done as part of the Statistical and Geospatial Framework for the Americas (MEGA)



Project Participants

 <p>The Statistical Institute of Belize</p>	 <p>Ministry of Natural Resources, Land and Surveys Department</p>	 <p>National Geographic Institute (IGN) of Costa Rica</p>	 <p>National Institute of Statistics and Census</p>	 <p>Directorate-General for Statistics and Census</p>
 <p>National Records Center</p>	 <p>National Geographic Institute</p>	 <p>National Institute of Statistics</p>	 <p>National Property Management System</p>	 <p>National Institute of Statistics</p>
 <p>Nicaraguan Institute of Territorial Studies</p>	 <p>Central Bank of Nicaragua</p>	 <p>National Institute of Development Information of Nicaragua</p>	 <p>National Geographic Institute - Tommy Guardia</p>	 <p>National Institute of Statistics and Census</p>



Project Support

Co-led by:

- ❖ UN-GGIM: Americas – Paloma Merodio Gomez/Gabriela Garcia Seco
- ❖ U.S. National Section of PAIGH – Deirdre Dalpiaz Bishop/Paul Riley

Supported by:

- ❖ National Institute of Statistics and Geography (INEGI)
- ❖ UN Economic Commission for Latin America and the Caribbean (ECLAC)
- ❖ National Administrative Department of Statistics (DANE)
- ❖ U.S. Census Bureau



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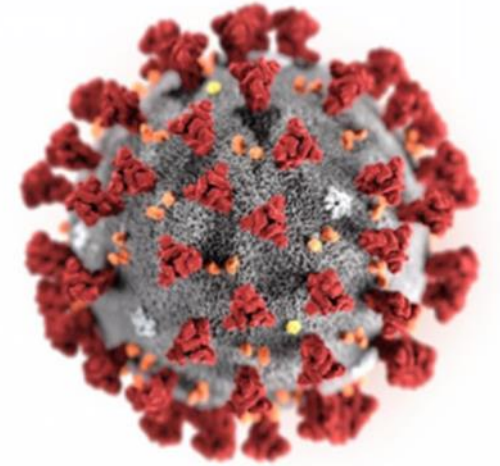
COVID-19

With the advent of the COVID-19 Pandemic, the technical project team made the decision to set aside its' work on education to focus on how they could assist decision makers in Central America with their response to COVID-19

Esri Humanitarian/Health Response Program - the technical project team established an ArcGIS Online Organization, that provides the project with:

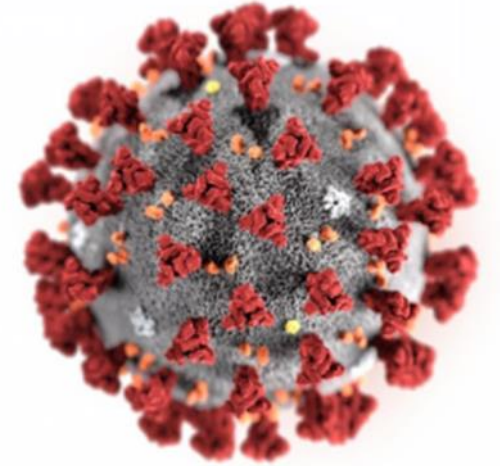
- A private and public space for the team to work collaboratively
- The ability to centralize the data and information needed for the project
- The ability to provide meaningful and timely information
- Access to ArcGIS Online - Access will be provided for up to 15 technical users

Hub Link: <https://paigh-integration-work-in-central-america-unggimamericas.hub.arcgis.com/>



Vulnerability to COVID-19

Building on the work of DANE's development of a Vulnerability Index for Columbia, the technical project team began work on the development of a Vulnerability Index



What is Vulnerability?

Physical, economic, social, environmental or institutional susceptibility or fragility that a community has to be affected or suffer adverse effects in the event that a dangerous physical event occurs. (UNGRD & IEMP, 2016)*

What is Vulnerability to COVID 19?

Conditions of age and comorbidity that result in a greater susceptibility to contracting COVID 19



Vulnerability to COVID-19

Who are most likely to be vulnerable to COVID-19?

Those in a population that, due to demographic characteristics and health conditions, may have more chance of complications if they contract COVID-19

❖ Population

- Over 60
- Living In overcrowded conditions
- Older populations living with younger family members

❖ Population with Health Conditions

- Heart Disease
- Respiratory Illnesses
- Diabetes
- Obesity
- Cancer



Vulnerability Index Variables

At the time of the construction of the index, 13 variables were identified for analysis and the calculation of the Vulnerability Index

Data Elements	Vulnerability Index
Population Data	
Population Age 60 and over	✓
Population Density (Overcrowding)	✓
Population Density (Number of people per house)	✓
Access to Public Water	✓
Access to Public Sanitation (Sewage)	✓
Health Data - Health Conditions	
Asthma	✓
Heart Disease (stroke, heart attack, etc.)	✓
Diabetes	✓
Cancer	✓
Immune System	✓
Respiratory System	✓
Hypertension	✓
Obesity	✓



Vulnerability Index Data Structure

Data structure is harmonized with the MEGA and the MEGA has been expanded to accommodate the additional variables

Vulnerability Index					
Level 5. Data Structure					
N5_<Country Name>					
Data Element	Field Name	Alias	Data Type	Size	Description
Geographical level 1 (Country)	NV1_COD	COD_NV1	Text	3	ISO 3166 Code for country (See Annex 3 of MEGA).
Geographical level 2 (Second Level of the Administrative Political Division)	NV2_COD	COD_NV2	Text	3	Identifier code to the administrative territorial entity Level 2.
Geographical level 3 (Third Level of the Administrative Political Division)	NV3_COD	COD_NV3	Text	4	Identifier code to the administrative territorial entity Level 3.
Geographical level 4 (Fourth Level of the Administrative political division or statistical entity)	NV4_COD	COD_NV4	Text	10	Identifier code to the administrative territorial/ statistical entity Level 4.
Geographical level 5 (Fifth Level of the Administrative political division or statistical entity)	NV5_COD	COD_NV5	Text	10	Identifier code to the administrative territorial/statistical entity Level 5.
Integrated Level 5 Code	NV5_COD_IN	COD_INT	Text	30	Primary key. NV1_COD, NV2_COD, NV3_COD, NV4_COD, and NV5_COD fields integration.
Level 5 Name	NV5_NBRE	NAME	Text	50	Assigned name to the administrative territorial entity Level 5. (Statistical name if applicable)
Level 5 Entities Area	NV5_AREA	SURFACE	Double	10 2	Total area of the Level 5 administrative territorial/statistical entity measured in square kilometers.
Population Density	DENSI	DENSI	Double / Float		Ratio between the number of census population and the area in square meters
Population from 0 to 9 years old	G_EDAD_0_PORC	G_EDAD_0_PORC	Double / Float		Proportion of people from 0 to 9 years old
Population of people from 10 to 19 years old	G_EDAD_10_PORC	G_EDAD_10_PORC	Double / Float		Proportion of people from 10 to 19 years old
Population of people from 20 to 29 years old	G_EDAD_20_PORC	G_EDAD_20_PORC	Double / Float		Proportion of people from 20 to 29 years old
Population of people from 30 to 39 years old	G_EDAD_30_PORC	G_EDAD_30_PORC	Double / Float		Proportion of people from 30 to 39 years old
Population of people from 40 to 49 years old	G_EDAD_40_PORC	G_EDAD_40_PORC	Double / Float		Proportion of people from 40 to 49 years old
Population of people from 50 to 59 years old	G_EDAD_50_PORC	G_EDAD_50_PORC	Double / Float		Proportion of people from 50 to 59 years old
Population Age 60 and over	G_EDAD_60_PORC	G_EDAD_60_PORC	Double / Float		Percentage of people over 60
Households in overcrowded rooms	HAC_CUARTOS	HAC_CUARTOS_PORC	Double / Float		Proportion of households in overcrowded rooms
Households in overcrowded dorms	HAC_DORMIT	HAC_DORMIT_PORC	Double / Float		Proportion of households in overcrowded dorms
Households at high intergenerational risk	H_RIESG_IA	PORRGA	Double / Float		Proportion of households at high intergenerational risk (generational households made up of adults over 60 years of age and population in most contagious age group (between 20 and 29 years old)
Households at medium intergenerational risk	H_RIESG_IM	PORRGM	Double / Float		Proportion of households at medium intergenerational risk (generational households made up of adults over 60 years of age and population in the second most contagious age group (between 30 and 59 years old)
Access to Public Water	VB_ACU	VB_ACU	Short Integer		Housing with access to the public aqueduct service
Access to Public Sanitation (Sewage)	VC_ALC	VC_ALC	Short Integer		Housing with access to public sewer service
Hypertension	P_GRU_1	P_GRU_1	Double / Float		Proportion of people diagnosed with hypertension, hypertensive heart disease, hypertensive kidney disease, hypertensive cardio renal disease, secondary hypertension
Obesity	P_GRU_2	P_GRU_2	Double / Float		Proportion of people diagnosed with obesity
Diabetes	P_GRU_3	P_GRU_3	Double / Float		Proportion of people diagnosed with diabetes, insulin-dependent diabetes mellitus, non-insulin dependent diabetes mellitus, diabetes mellitus associated with malnutrition, other specified diabetes mellitus, diabetes mellitus, unspecified



Vulnerability Index Workshop

Hosted a virtual workshop

- ❖ This workshop was conducted in two sessions and both sessions were approximately 2 hours long
 - Session 1 – was held on July 9, 2020, and was a theoretical session in which the methodology and calculations used to build the vulnerability index were discussed
 - Session 2 – was held on July 16, 2020, and was a practical session in which the adaptation of the methodology, calculations, scope, and limitations for each country were discussed and participants broke into small virtual groups and had an opportunity to apply the vulnerability index methodology to their own data variables
- ❖ 43 participants represented all of the countries in Central America

Vulnerability Index Workshops

Session 1

Thursday, July 9, 2020
12PM EST

12:00 Welcome words
12:10 Session guidelines, handout, and interactive opening game
12:15 Vulnerability Index: Presentation
13:40 Open discussion and conclusions
13:55 Closing remarks
14:00 End of session

Session 2

Thursday, July 16, 2020
12PM EST

12:00 Welcome words
12:10 Session guidelines, handout, and interactive opening game
12:15 Vulnerability Index: Hands-on Workshop
13:40 Open discussion and conclusions
13:55 Closing remarks
14:00 End of session



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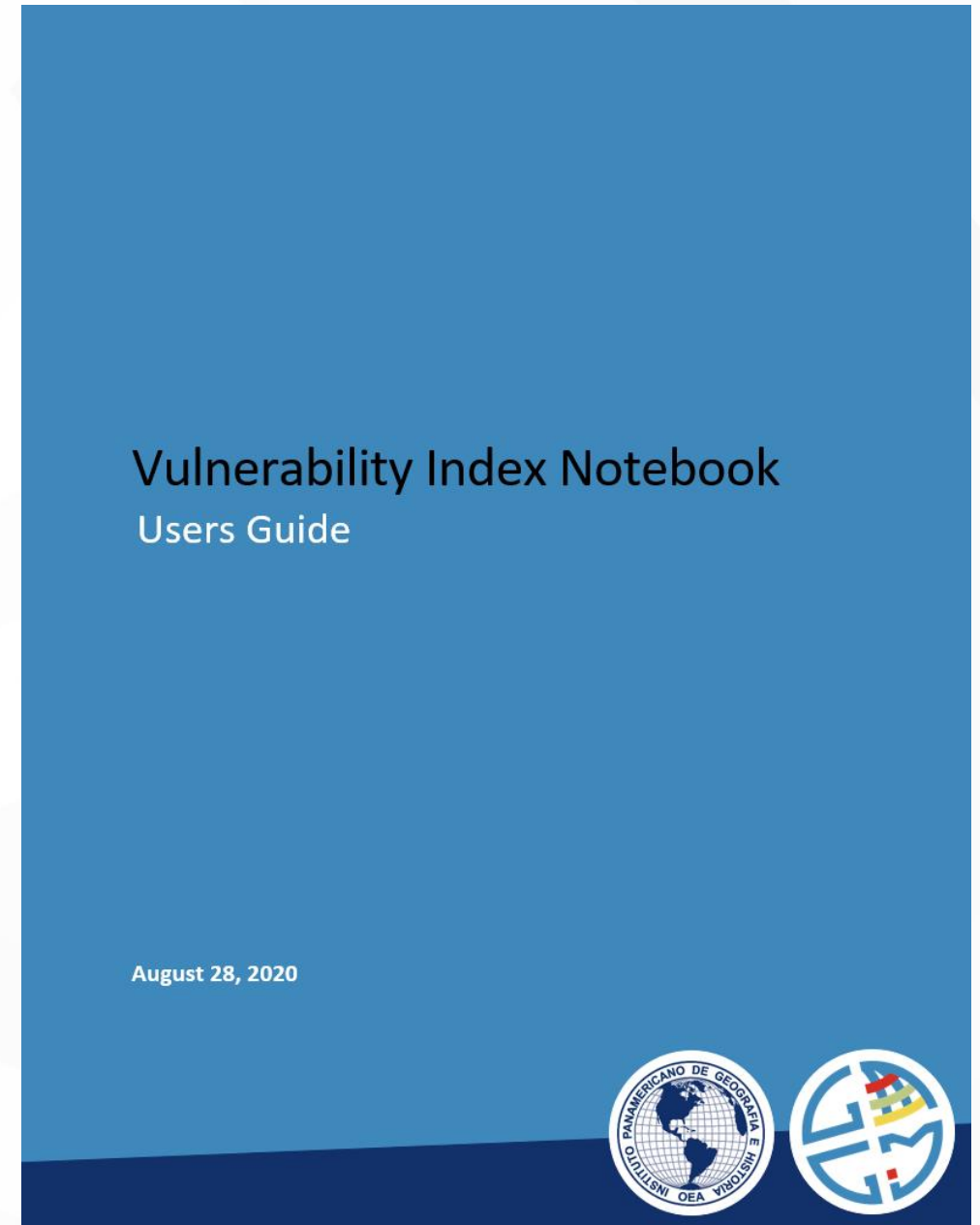


Vulnerability Index Workshop Products

- ❖ Workshop products in Spanish and English include:
 - ✓ Video recordings of each session of the workshop
 - ✓ Vulnerability Index Notebook tutorial video
 - ✓ Vulnerability Index Notebook users guide
- ❖ All products will be available on the technical project website with links on the UN-GGIM: Americas website



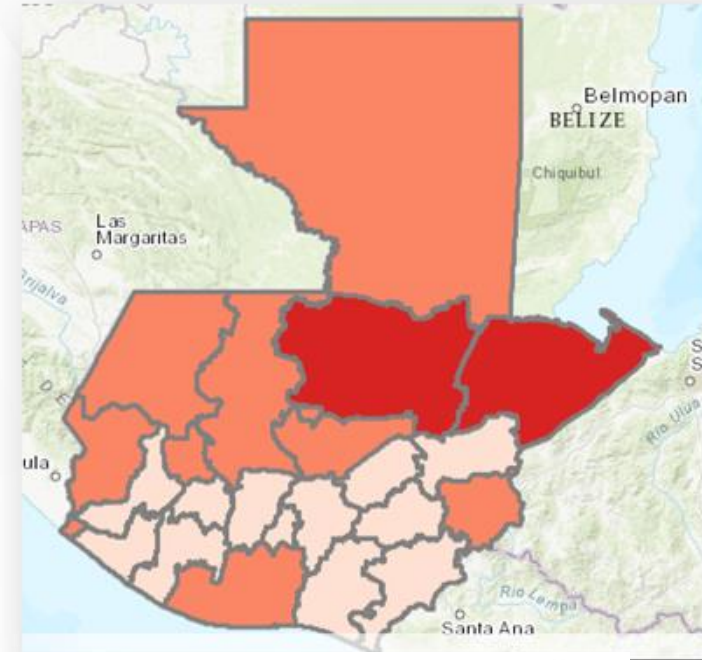
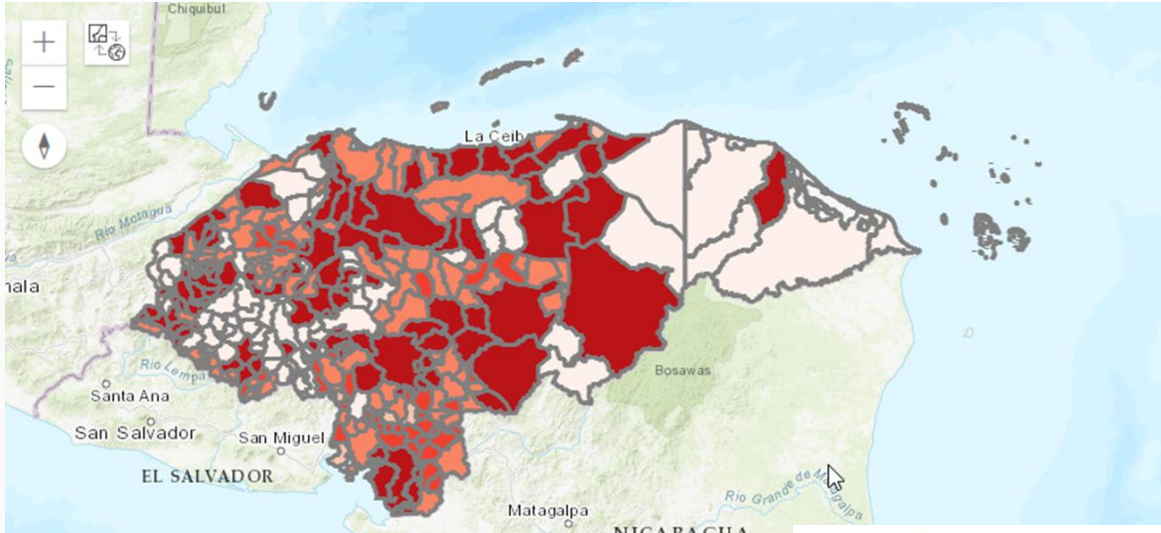
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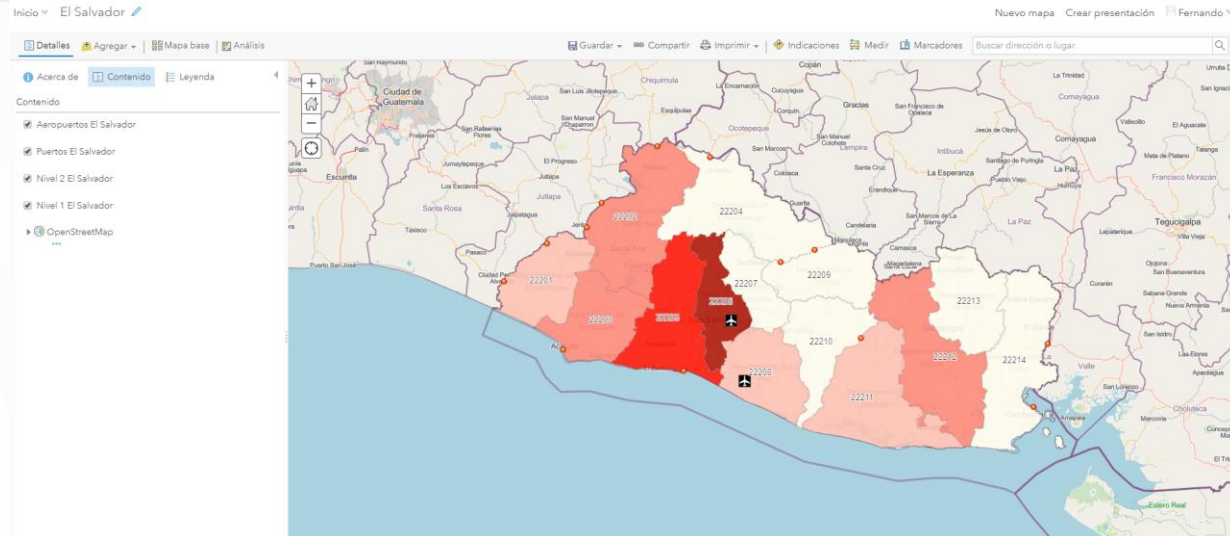
Vulnerability Index Preliminary Results

Índice de Vulnerabilidad Guatemala

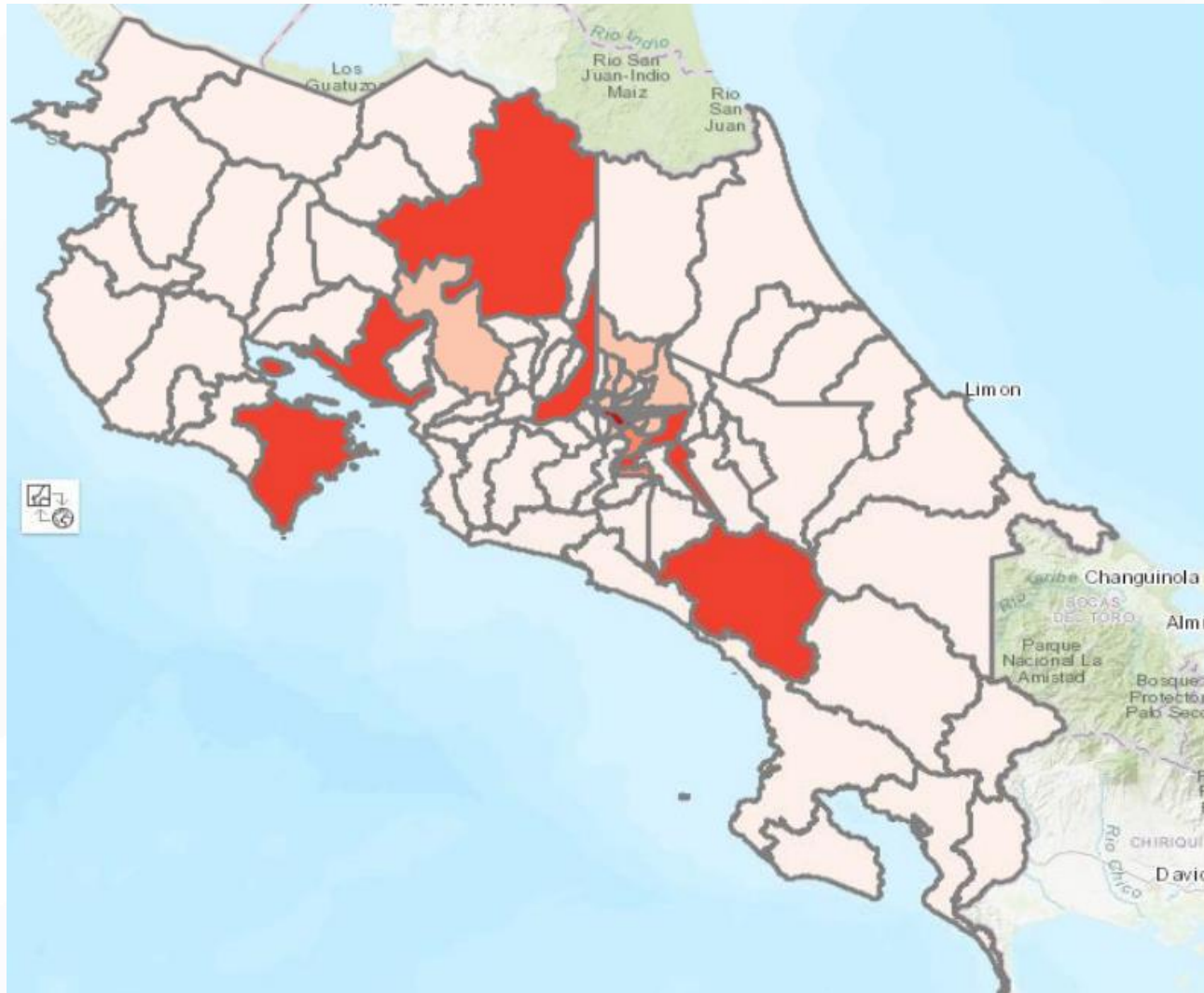
Índice de Vulnerabilidad Honduras



Índice de Vulnerabilidad El Salvador



Vulnerability Index Preliminary Results – Costa Rica



COSTA RICA Vulnerabilidad por Cantón N3

Variables:

PGRU2 a PGRU7

Sistema circulatorio

Sistema respiratorio

Obesidad

Diabetes

Cáncer

Acceso a alcantarillado (VB_ACU)

Acceso a acueducto (VB_ACU)

Habitantes por cuarto (HAC_CUARTOS)

Densidad de población (DENSI)

Población de 60 años y más.

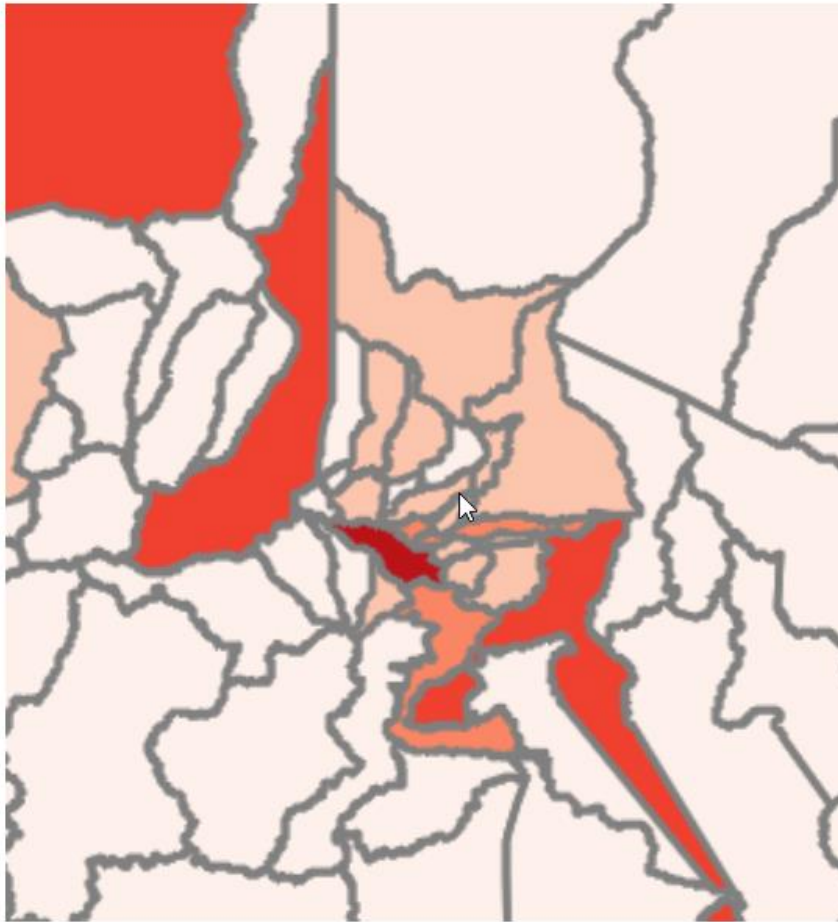
(G_EDAD_60_PORC)

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Vulnerability Index Preliminary Results – Costa Rica

COSTA RICA
Vulnerabilidad por Cantón



COSTA RICA
Casos de Covid-19 por Cantón
12 de agosto 2020



Thank You
for your attention!



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