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HUMAN SYSTEMS

MEASURING POVERTY IN GALAPAGOS

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*The **Galapagos National Park Service** has its headquarters in Puerto Ayora, Santa Cruz Island, Galapagos and is the Ecuadorian governmental institution responsible for the administration and management of the protected areas of Galapagos.*

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Photograph: Linda Cayot

The purpose of this study is to explore the issue of poverty in Galapagos within a national context. The two most commonly used methods for measuring poverty are the Unsatisfied Basic Needs Index and the Poverty Lines approach (also referred to as Poverty Thresholds). These methods utilize different but complementary approaches. The first takes a social approach and is based on verifying a household's access to services such as potable water and wastewater systems that meet or exceed minimum health requirements, as well as basic needs such as education and employment. The second method takes an economic approach, associating poverty with the lack of monetary resources for essentials, such as food, goods or services.

While the Unsatisfied Basic Needs Index determines whether or not a home meets certain minimum requirements that guarantee wellbeing, the Poverty Lines approach measures the availability of resources in the home but does not verify whether an investment is actually made in the items considered necessary. An advantage of the first method is that it evaluates requirements that are applicable to any province, making it possible to compare indicators in different areas. The monetary focus of the Poverty Lines methodology is specific to the economic conditions of each region. For example, a dollar in Galapagos has a different purchasing capacity than in another province of the country. However, the Poverty Lines method provides greater numerical analysis, such as establishing how far households are from the minimal requirements for wellbeing. In other words, this approach helps to determine how poor the poor are.

The two main sources of data used for calculating poverty indicators were the Living Conditions Survey – Galapagos, jointly developed in 2009-2010 by the Governing Council of Galapagos (CGREG, for its initials in Spanish), the National Institute of Statistics and Census (INEC, for its initials in Spanish), and the Population and Housing Census of 2010. The results presented here are from CGREG's Measuring Poverty in Galapagos Study (CGREG, 2010), which proposed changes to the methodology for calculating economic values throughout Ecuador. This study was approved by the Ministry of Social Development, the National Secretary of Planning and Development (SENPLADES, for its initials in Spanish) and INEC.

According to the 2010 census, the population of Galapagos is 25,124 inhabitants, which includes people living in collective dwellings such as hotels, tour boats, prisons, military barracks, etc. Poverty calculations were performed only for the 23,114 individuals living in homes.

Poverty according to the Unsatisfied Basic Needs Index: a social approach

The Unsatisfied Basic Needs Index (UBNI) strives to identify a set of basic needs and establish the standards under which the level of fulfillment of those needs will be considered unsatisfactory. The identified necessities are common for a number of countries, but the particular characteristics that qualify them as unsatisfied or in deficit are determined by each country, generally following recommendations by the United Nations Economic Commission for Latin America and the Caribbean (CEPAL, 2007).

In Ecuador, an individual is considered to be living in poverty if they are part of a household that fails to achieve wellbeing by presenting at least one of the following five characteristics: 1) high economic dependence; 2) children not attending school; 3) house with inadequate physical characteristics; 4) inadequate sanitary systems, or 5) living in critically overcrowded conditions (Figure 1).

Unsatisfied basic needs	In what cases do they occur?
1. High economic dependence	• If each person in the house works more than three jobs; and, • If the head of the house has two or fewer years of formal education.
2. Children not attending school	• At least one 6-12 year old child in the house does not attend a formal educational institution.
3. House with inadequate physical conditions	• If the floor of the house is predominantly earth; or, • If the walls are constructed predominantly of non-treated reed, mat, plastic or other.
4. Inadequate sanitary systems	• If the water supply system of the home is other than the public network. • If the home does not have a toilet; if it has a latrine or if the toilet is connected to a cesspool.
5. Critical overcrowding	• If more than three people in the house share a single bedroom for sleeping.

Figure 1. Poverty indicators based on the Unsatisfied Basic Needs Index (UBNI).

According to the UBNI, just over half the population of Galapagos (52%) is in poverty, since they have one or more of the defined characteristics of poverty (Table 1). Those who are deficient in just one basic need (40%) are considered to be in *non-extreme poverty*. People who belong to households that lack two or more basic needs (one in every 10 people) are considered in *extreme poverty*.

The most common components of poverty in Galapagos are inadequate sanitary conditions and critical overcrowding (Figure 2). Two out of every five people in Galapagos belong to households without access to a public water system or to an adequate wastewater system in their home (either a sewer system or septic tank). One in five people in Galapagos shares a bedroom with more than two other people.

Table 1. Poverty indicators in Galapagos using the UBNI.

Condition	No. Inhabitants	Percentage		
Not in poverty	11,122	48.2		
Poverty: not extreme	9,276	40.2		► 52%
Poverty: extreme	2,677	11.6		
No response*	39	----		
Total	**23,114**	**100.0**		

*Some questions had no response in the 2010 Census. Source: Population and Housing Census 2010. Data processing and analysis: CGREG
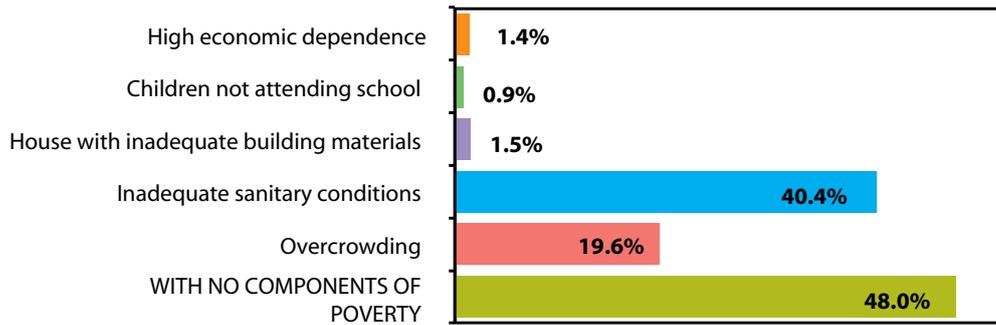
Figure 2. Incidence of poverty indicators in the Galapagos population. The bars do not sum to 100% because one person may belong to a house with more than one component of poverty. Source: Population and Housing Census 2010. Data processing and analysis: CGREG

One advantage of the UBNI is its comparability with other provinces. In relation to the rest of the country, Galapagos has the third lowest level of poverty (52%) after Pichincha (33%) and Azuay (49%; Figure 3).
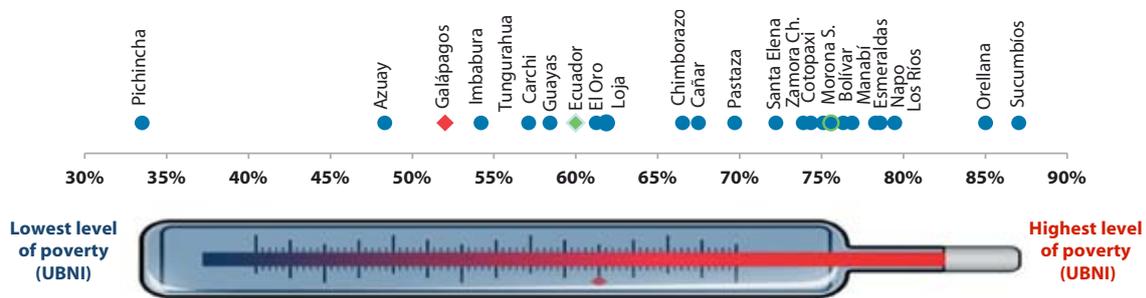

Figure 3. Poverty according to the UBNI by province. Source: Population and Housing Census 2010. Data processing and analysis: CGREG

Seven of the 24 provinces of Ecuador, including Galapagos, have poverty rates less than the national average. Of the approximately 14.5 million inhabitants counted in all of Ecuador in the 2010 Census, about 8.7 million (60%) are in poverty because of having at least one component of the UBNI.

Galapagos follows the same pattern as mainland Ecuador where poverty levels measured by the UBNI are higher in rural areas than in urban areas; primarily due to the dispersion of the population, which makes the provision of public services more difficult. In the rural areas of Galapagos, 78 of every 100 inhabitants are in poverty, compared to 47 of every 100 in the urban areas (Figure 4A).
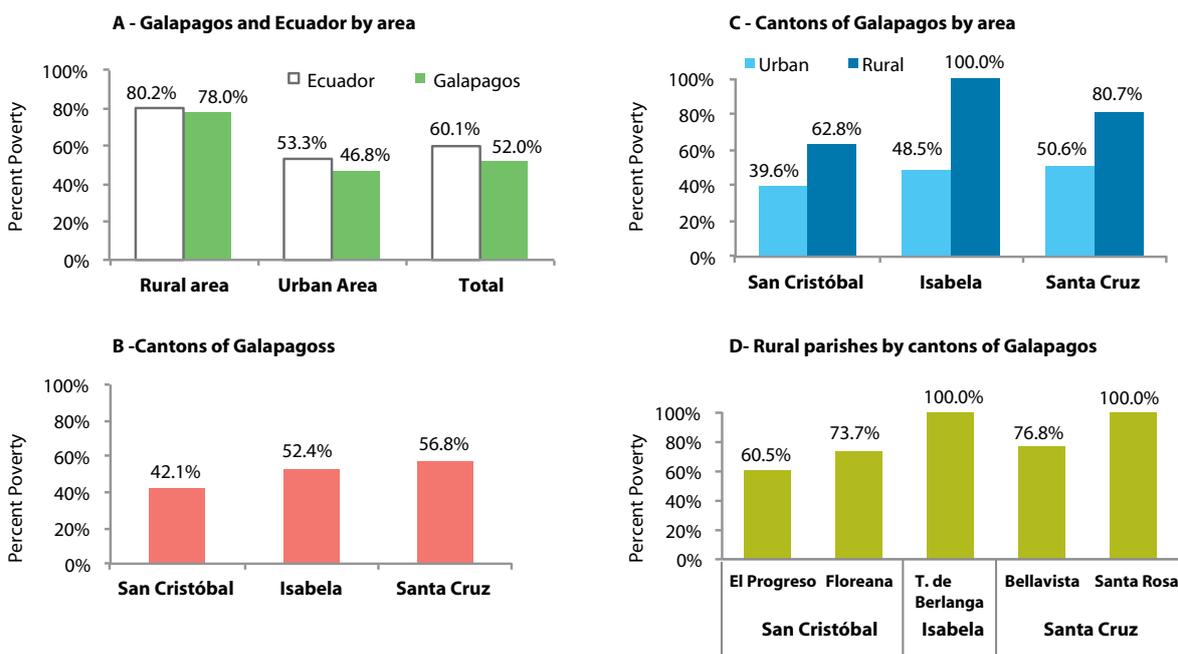

Figure 4. Poverty according to the UBNI by different areas. Source: Population and Housing Census 2010. Data processing and analysis: CGREG

About 60% of the total population of Galapagos lives in the canton of Santa Cruz, which also has the highest level of poverty (57%; Figures 4B & 4C). In the canton of Isabela, 52% experience some component of poverty, while in San Cristóbal only 42% are considered poor.

In the rural parishes of Tomás de Berlanga (Isabela) and Santa Rosa (Santa Cruz), none of the homes receive water through a public supply system, which means that the poverty level in these communities is 100% (Figure 4D). The rural parish of El Progreso in San Cristóbal has the

lowest poverty level for a rural area in Galapagos (60.5%).

The greatest needs in both the rural and urban areas are improving the coverage of public water supply systems and ensuring that houses provide proper sanitary conditions by building septic tanks until the public sewage system is expanded (Table 2). In urban areas improvements in housing infrastructure should be promoted to increase the number of bedrooms or to increase the housing supply to avoid critical overcrowding, which leads to higher levels of disease.

Table 2. Poverty components according to the UBNI by urban and rural areas. Source: Population and Housing Census 2010. Data processing and analysis: CGREG

Poverty components	Urban Area		Rural Area	
	Population In Poverty (%)	Total Population (%)	Population In Poverty (%)	Total Population (%)
High economic dependence	3.1	1.4	1.8	1.4
Children do not attend school	1.8	0.8	1.2	1.0
Home built with deficient materials	2.6	1.2	4.1	3.2
Inadequate sanitary conditions	73.2	34.2	91.8	71.5
Overcrowding	41.8	19.5	25.8	20.1

Poverty according to Poverty Lines: economic approach

Poverty Lines are determined by the monetary thresholds that ensure the ability to purchase a basket of essential items. These thresholds are used as a benchmark of poverty, with those with fewer resources considered in poverty. Poverty Lines are used in the plural because two different monetary measures are calculated: 1) the purchasing capacity of the population for food, goods

and services; and 2) the purchasing capacity for food only. The first calculation measures the Poverty threshold and the second the Extreme Poverty threshold.

Poverty Lines in Galapagos were calculated based on the per capita consumption patterns for the most common and basic items needed for a healthy lifestyle: 87 food items, 25 durable goods, 13 basic services, 14 items relating to education, and 72 related to personal care, clothing and entertainment (Figure 5).
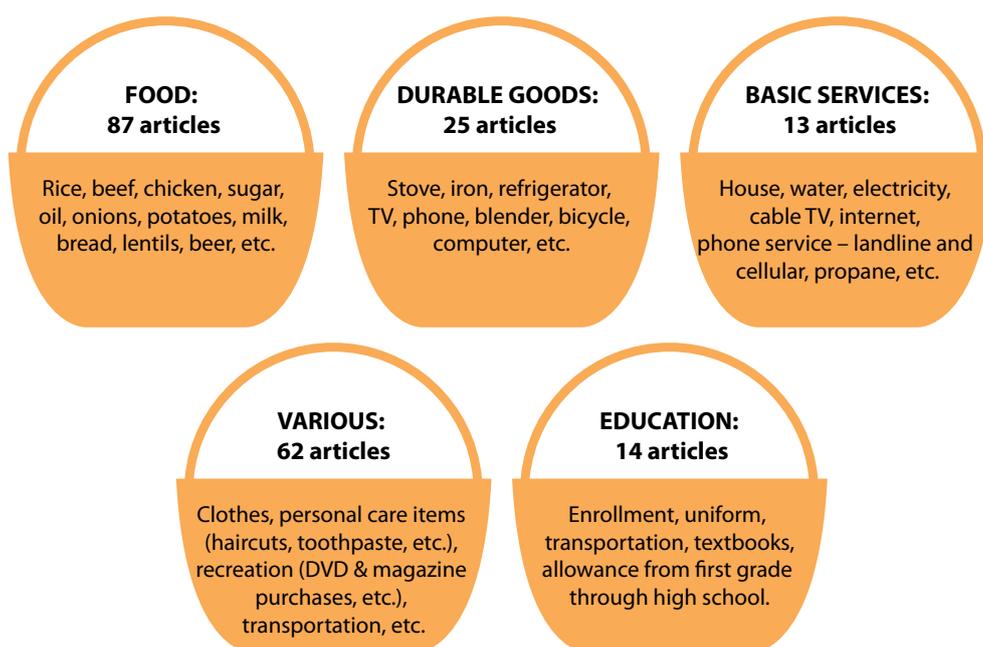
FOOD:
87 articles

Rice, beef, chicken, sugar, oil, onions, potatoes, milk, bread, lentils, beer, etc.

DURABLE GOODS:
25 articles

Stove, iron, refrigerator, TV, phone, blender, bicycle, computer, etc.

BASIC SERVICES:
13 articles

House, water, electricity, cable TV, internet, phone service – landline and cellular, propane, etc.

VARIOUS:
62 articles

Clothes, personal care items (haircuts, toothpaste, etc.), recreation (DVD & magazine purchases, etc.), transportation, etc.

EDUCATION:
14 articles

Enrollment, uniform, transportation, textbooks, allowance from first grade through high school.

Figure 5. Articles included in calculating Poverty Lines. Source: Population and Housing Census 2010. Data processing and analysis: CGREG

The calculation of the Extreme Poverty Line is restricted to the food basket. The number of food items and the amount of each item are based on the minimum caloric requirements needed to keep the body alive. The caloric standard (the average number of kilocalories per capita required in a population) is a function of age structure and gender in the country or region, as children and women have lower energy requirements than adults or men, respectively (FAO-WHO, 2004). Because the Galapagos population has more men than women (2010 Census), it has a higher caloric standard (2.218 kcal/person) than the rest of the country (2.159 kcal/person).

Based on the food basket and the caloric standard of the province, the cost for daily food consumption for a Galapagos resident is US$2.61.

Some homes produce a certain amount of their own food. To avoid underestimating consumption of specific sectors of the population, particularly rural households, the value of these self-supplied items are calculated based on normal purchase prices.

The Poverty Line in Galapagos is calculated based on the food basket as well as the other four baskets of goods and services (Figure 5). In the case of Galapagos, the CGREG proposed adjusting the cost of water to include freshwater sources. Furthermore, in the case of durable goods, the CGREG included boats and freezers to better determine the cost of living of those who depend on fishing and tourism. In addition, urban and interisland transportation, and travel between Galapagos and the continent were itemized to more accurately calculate the overall cost of transportation. With these additions, the Poverty Line in the province (the minimum consumption of food, goods and essential services of a Galapagos resident per day) is $5.79 in 2009 prices (Figure 6).

According to the economic approach of Poverty Lines, there is no extreme poverty in Galapagos. All of the inhabitants have enough monetary resources to allow them to guarantee at least the minimum required food intake. However, there is poverty; 8% do not have sufficient resources to enable them to meet basic demands for other goods or services, indicating that there is a vulnerable portion of the population that is very close to the poverty threshold.
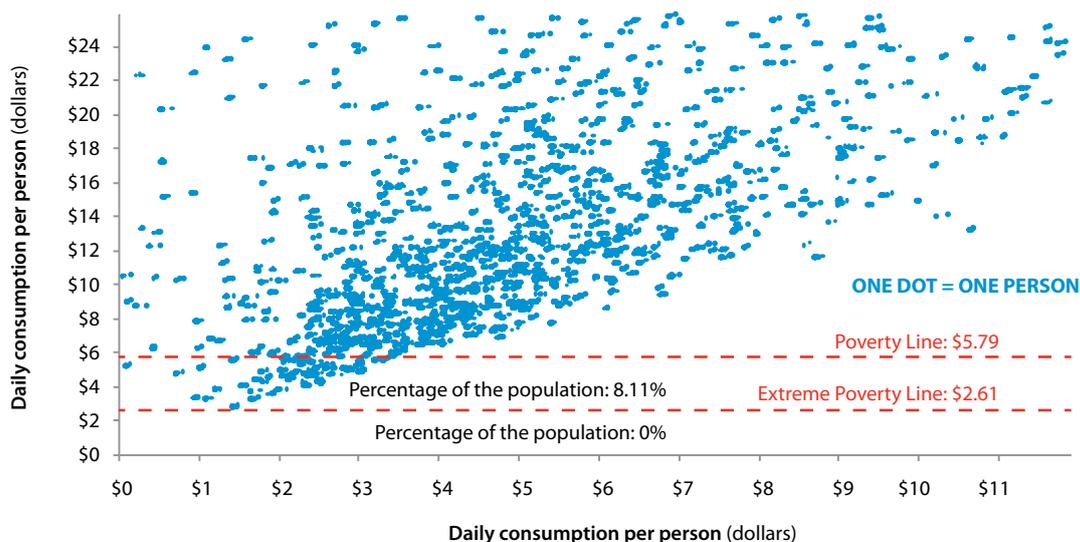

Figure 6. Dispersion of the Galapagos population around the thresholds of poverty (Poverty Lines). Source: Living Conditions Survey – Galapagos 2009-2010 (INEC & CGREG). Processing and analysis: CGREG

In the rural areas of Galapagos there is a slightly higher incidence of poverty compared to urban areas (11% poverty in rural areas, 8% in urban areas; Figure 7). Areas with lower economic dynamics include Floreana Island and some rural areas of the other islands. On Floreana, 22% of 145 inhabitants (according to the 2010 Census) recorded lower levels of consumption of goods and basic services, probably because some of the items included in the baskets, such as entertainment services, are not available. In Tomas de Berlanga, a rural area on Isabela, 20% of its 164 inhabitants are in poverty (Figure 7).

When comparing poverty lines in Galapagos with other regions or countries, it must be remembered that the economic values of each region are determined by their specific economic dynamics (Table 4). Different poverty levels can exist in different regions within a single country. For example, in the United States, three poverty lines are calculated, one for the contiguous states and two more for Alaska and Hawaii, where prices are higher. The same applies to Galapagos in relation to continental Ecuador.

A - Galapagos and Ecuador by Area

B - Cantons of Galapagos

Floreana is a rural parish of the San Cristóbal canton
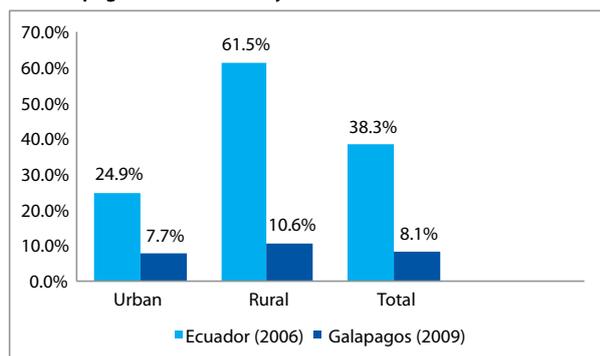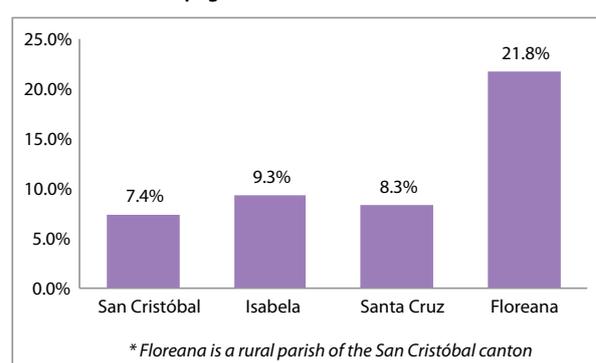
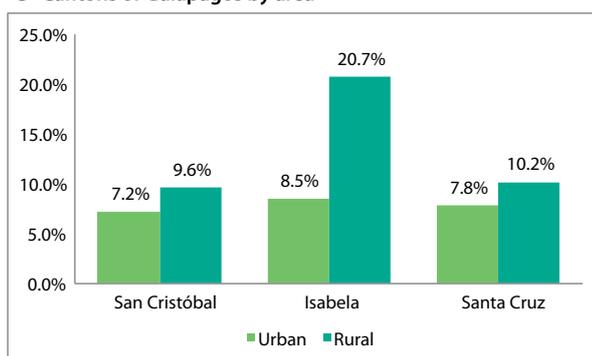**C - Cantons of Galapagos by area**

Figure 7. Poverty according to the Poverty Lines method, by different areas. Source: Living Conditions Survey – Galapagos 2009-2010 (INEC & CGREG); results of Poverty of Ecuador from INEC.

Table 4. Poverty Lines of Ecuador and other countries. Source: [1]INEC, [2]CGREG, [3]Misión para el Empalme de las Series de Empleo, Pobreza y Desigualdad & DANE, [4]Comisión Consultiva para la Estimación de la Pobreza & INEI, [5]U.S. Census Bureau, [6]Secretaría de Estadísticas de la UE.

Country/Region		Dollars per day per capita*
Ecuador		
	Ecuador (2006)[1]	$ 1.90
	Galapagos (2009)[2]	$ 5.85
Community of Andean Nations		
	Colombia (2009)[3]	$ 4.35
	Perú (2007)[4]	$ 2.44
United States (2009)[5]		
	Contiguous states and other territories	$ 10.83
	Hawaii	$ 12.46
	Alaska	$ 13.53
European Union (2007)[6]		
	Spain	$ 29.24
	Bulgaria	$ 8.08
	Luxembourg	$ 62.59

*Except for the United States, the conversion to dollars was done by CGREG using the available information from each country's Central Bank for the year indicated.

Distribution of resources among the population

The Lorenz Curve represents the distribution of income or resources within a society and is used to calculate the Gini index, which is a measure of inequality. The Lorenz Curve for Galapagos (Figure 8) is a function of the food and basic goods and services of the population. The diagonal line represents equal distribution across the population, while a curved line indicates the actual inequality in distribution patterns. The farther the curve is from the diagonal line, the greater the inequity.

In 2009, the Gini index for Galapagos was 34%, compared to 46% for Ecuador as a whole in 2006. This means that the distribution of goods among the inhabitants of the islands is more equitable than in the rest of the country.

The average daily per capita consumption in Galapagos during this period was US$16.28 (± $ 0.34), with a minimum of US$2.65 (very close to the extreme poverty line) and a maximum of US$170. More than 50% of the population has daily consumption between US$8.70 and US$20.
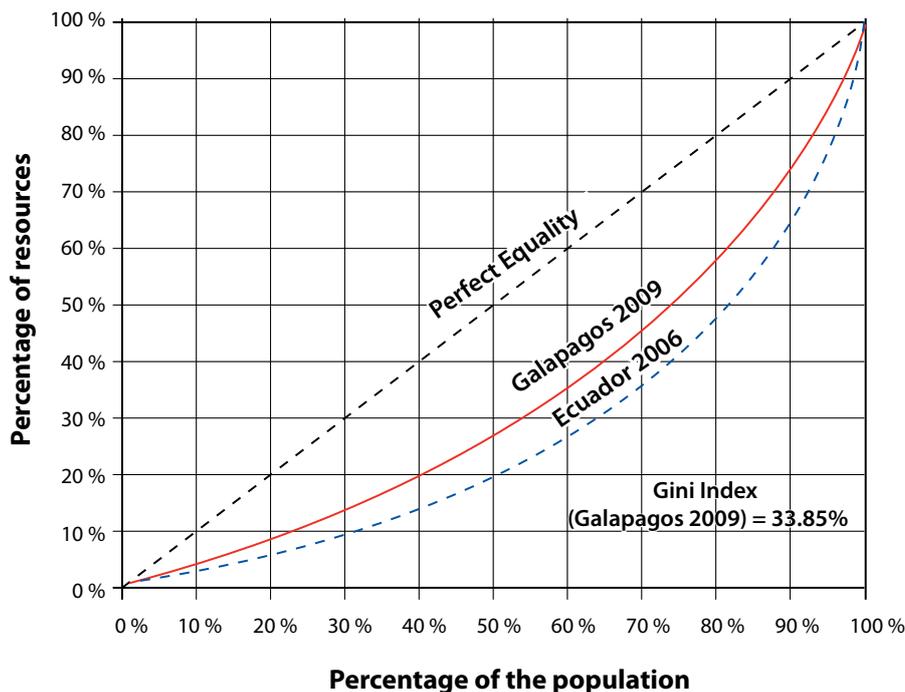

Figure 8. Poverty by the Poverty Lines method for Galapagos and Ecuador. Source: Living Conditions Survey – Galapagos 2009-2010 (INEC & CGREG). Processing and analysis: CGREG.

Conclusions and recommendations

According to the Unsatisfied Basic Needs Index (UBNI), one in 10 people in Galapagos is in a situation of extreme poverty (lacking access to two or more basic needs) and another 40% is at the non-extreme poverty level (lacking access to a basic need). The most common conditions that contribute to this situation are inadequate sanitary conditions and critical overcrowding.

On the basis of the UBNI, of the 24 provinces of Ecuador, only two (Pichincha and Azuay) have lower poverty levels than Galapagos, where the poverty rate is 52%. As in the rest of the country, rural areas of Galapagos have a higher incidence of poverty (78%) than urban areas (47%), largely due to the dispersion of the population and the difficulty of achieving coverage of basic services.

These results indicate the importance of improvements - especially in rural areas – to public water systems, housing, and wastewater management systems (either septic tanks or sewage systems).

According to the Poverty Lines methodology, there is no extreme poverty in Galapagos, but a segment of the population (8%) is very close to the threshold and should be considered in a vulnerable situation. This methodology confirms a higher incidence of poverty in rural areas. It also indicates that although there is inequity in the distribution of goods among the inhabitants of Galapagos, there is a higher level of equity in the islands than in the rest of the country.

Photograph: Ana Rosa Thoala

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