BLUEPRINT PROJECT FOR SUSTAINABLE LANDSCAPES

How to select useful secondary data at landscape level

Julián Gómez Ríos

Oliver Bach

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Contents

This document describes the process that the project team of the Blueprint Landscape Sustainability Assessment system has engaged in from 2020-2022 to select meaningful secondary sustainability data at local level (communities, municipalities, or similar local jurisdictions) and how Blueprint envisions the role of secondary data for future replicas in other tropical regions dominated by agriculture land uses.

Primary versus secondary data collection

During its system development phase in the Zona Bananera municipality (Magdalena department, Colombia), the SAN/Fundación Natura Blueprint Project management team has learned that the socio-economic and environmental reality of a territory can only be transparently described via primary data collection in two ways:

1.) Talking to local inhabitants to get their view of the local situation; and

2.) Visual classification of land use covers with high-precision satellite images and a comprehensive set of land-use types as offered by the Corine Land Cover project.

A representative sample of local inhabitants (such as producers or farm owners, workers, and representatives of civil society organizations/municipalities) selected by a stakeholder mapping and engagement exercise, means, for example, for a municipality of 60,000 inhabitants, a sample size that varies between 68 and 382 interviewees (depending on a 90 or 95% confidence level, and 5 or 10% margin of error).

Secondary data from international sources usually are only offered at country level and additionally are very limited in terms of inaccuracy of land use covers or data update frequency. Their level of analysis is focused on either a very narrow set of topics, or on macro-indicators that are not suitable for a specific micro-region like a municipality.

In the case of economic, demographic and health data, as well as access to basic needs (drinking water, health, and education services), the comparison with national data collected via census by national statistic or health institutes is helpful for the sustainability analysis of a territory. Specific data from national geographic institutes can also contribute to the landscape analysis. Secondary data at the municipality level serve to:

1. Compare socio-economic data of the municipality with national or department / province level averages; and
2. Compare the statistical data at municipality level with the results from local stakeholder interviews at the community or farm level.

Data attributes for secondary data

As a selection framework, the team defined the following attributes for the selection of secondary data from trusted data sources:

1.) No older than 4-5 years, e.g. 2018 at maximum for the 2022 Blueprint version

2.) Minimum geographic scope: municipality level

3.) Highly accurate data for land use cover analysis to eliminate confusion of natural ecosystem or forest cover with productive systems.

Blueprint defined sustainability at landscape level as:

- A balance between environmental, social and economic (commercial) elements, which will facilitate a territorial unit providing decent livelihood or income to all its inhabitants in the short and long term.
- Families can cover their basic needs.
- Productive activities in a territory do not degrade the local environment.
- Landscape governance is led by local actors through a process of participatory meetings and workshops.

As a next step, the team determined the following topics per sustainability dimension:

1.) Environmental Dimension

- Natural vegetation coverage (terrestrial)
- Aquatic ecosystem coverage
- Production systems coverage
- Biodiversity
- Extreme natural events
- Water
- Soils
- Use of natural resources
- Waste
- Pesticides with environmental impact

2.) Social Dimension

- Human infrastructure coverage
- Demographics
- Basic needs: health, housing, transportation, education, drinking water
- Food safety
- Pesticides with human health impact
- Citizen security
- Access to information
- Land use rights
- Human rights

3.) Economic Dimension

- Income
- Quality of life
- Investment at municipality level
- Certifications
- Agricultural productivity

4.) Governance

- Performance of the municipality
- Citizen participation
- Conflict management

The final selection of the sustainability indicator set comprises 96 indicators distributed within the four dimensions of environmental, social, economic and governance.

Selection of secondary data for Zona Bananera

1.) Data from International Sources

After an intensive analysis of numerous international data sources, the team concluded that only the following data sources are of value for the sustainability analysis of a tropical agriculture dominated municipality:

- NASA EARTH DATA VIIRS I-Band 375 m Active Fire Data
- World Database on Protected Areas (WDPA)

2.) National Data Sources for Colombia at municipality level:

After checking for the validity and availability of downloadable data, the following national sources have been selected for the municipality level:

- DANE, including national census and agriculture census
- Risk analysis (flood, drought, earthquakes) from IGAC (Instituto Geográfico Agustín Codazzi) / IDEAM (Instituto de Hidrología, Meteorología y Estudios Ambientales)
- Ministry of Communication
- Ministry of Education
- Ministry of Health and National Health Institute (Instituto Nacional de Salud)
- Santa Marta Chamber of Commerce
- Agricultural Rural Planning Unit (UPRA) Unidad de Planificación Rural Agropecuaria
- Universidad del Norte (for the municipality performance index)

Most of the used data are originated by DANE:

> *The National Administrative Department of Statistics (Spanish: Departamento Administrativo Nacional de Estadística), commonly referred to as DANE, is the Colombian Administrative Department responsible for the planning, compilation, analysis, and dissemination of the official statistics of Colombia. DANE is responsible for conducting the National Population and Housing census every ten years, among several other studies.*

Data from DANE cover population distribution and density, migration rate, life expectancy, fertility rate of adolescents, birth rate, mortality rates, coverage of public services (aqueduct, sewage, electricity, gas, internet, garbage collection), overcrowded households (urban and rural), housing deficit, level of school education, illiteracy, access to and proximity to health centers, health insurance coverage, violent deaths, cell phone and internet access, Economically Active Population, occupation rate, formal and informal employment rate, unemployment rate, Multidimensional Poverty Index, monetary poverty and Index of Unsatisfied Basic Needs.

Considerations for future replicas and other territories

The sections above described the process of secondary data selection for the case of Zona Bananera in the Colombian department of Magdalena. Colombia can be considered a country with a high level of professionalism in terms of data collection and statistical analysis.

However, credible and recent data at municipality level are not the status quo for all tropical or developing countries where the Blueprint Landscape Sustainability Assessment system could be applied in the future.

Although secondary data shed additional light on the sustainability of a territory, especially for demographic and health data, it should be considered that the most important data type collection to reflect the day-to-day reality of the local inhabitants is through structured interviews.

The annotated Blueprint catalogue of sustainability topics and indicators provides a framework that guides the selection of local secondary data – a process that doesn't need to cover all type of data outlined above, but rather should be seen as enriching the analysis of data collected through the interviews of local stakeholders and high-precision GIS analysis.