

Methodology for the Development of the Project: Identification and Characterization of the Zones Suitable for Oil Palm Cultivation



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KEYWORDS

Palm-farm zoning,
Palm-grove zone identification,
Palm map.

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Summary

This paper submits the methodological framework and policy outlines for the implementation of the “Identification and characterization of the zones suitable for oil palm cultivation” project.



Introduction

The Hydrology, Meteorology and Environmental Studies Institute [*Instituto de Hidrología, Meteorología y Estudios Ambientales*] (Ideam) is one of the five institutes focused on technical-scientific studies attached to the Ministry of the Environment, Housing, and Territorial Development. It forms an integral part of the institutions belonging to the National Environmental System (Sina). Sina constitutes the set of orientations, norms, standards, activities, resources, programs, and institutions that facilitate the implementation of the general environmental principles contained in the National Constitution and Law 99 of 1993.

At a national level its mission consists of establishing criteria and guidelines for the territorial environmental planning, while at the same time following up on the quality and state of natural resources, and providing the early forecasts and



warnings relating to the extreme climate and weather patterns in real time.

The methodology for the development of this project and the products and information bases developed by the Sina institutes with the significant support of the *Agustin Codazzi* Institute and the WWF, are described below.

The establishment of zones commences with a land assessment within the FAO's edafoclimatic and agrological terms, supplemented -and this is where the value added of this methodology and this project lies- with those aspects relating to viability from the ecological, ecosystemic, environmental, and socio-cultural points of view, taking into account location infrastructure and logistical aspects.

By considering these aforementioned aspects, the process will be selective in identifying the areas which are firstly, unsuitable due to agrological, socio-cultural and environmental restrictions, and secondly, those which

are suitable with no constraints for the development of the oil palm sector. Subsequently, the areas with different degrees of suitability and certain limiting factors, though likely to be viable, will be catalogued.

the suitability-zoning process. Firstly, areas located at less than 800 meters above sea level are selected since they adapt better to the crops in physiological terms. Secondly, the environmental analysis is carried out, which looks at constraints, focusing in particular on regulations and different methodologies.

Land that turns out to be suitable is subjected to a physical evaluation using the FAO's methodology, which takes soil, climate, and some infrastructural factors into consideration. Those selected at this stage are subjected to a socio-economic assessment in order to identify constraints in the area. The final synthesis is then made up from a combination of the zoning and the map of suitability for the expansion of the oil palm crop.

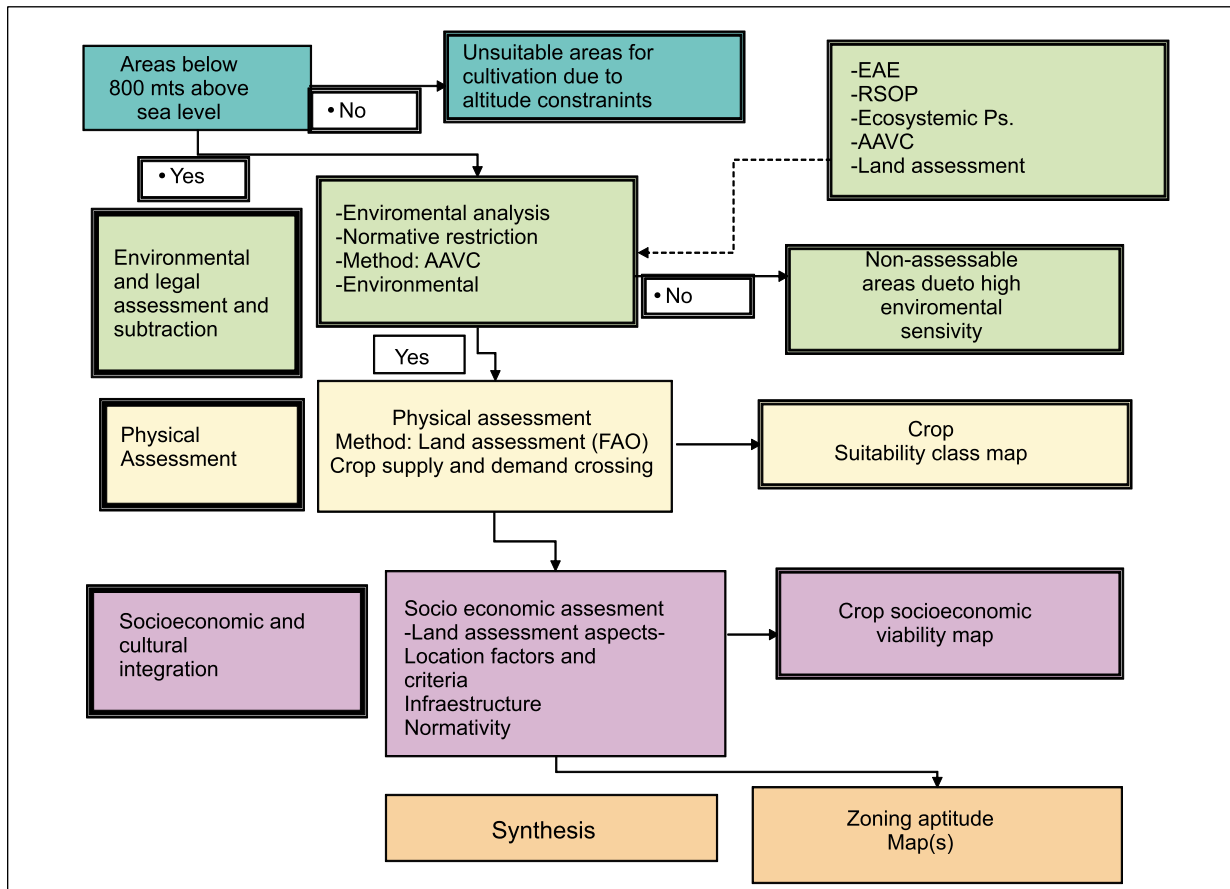


Figure 1. Suitability zoning process.

Criteria

The criteria used by this project are those related to the different categories of areas with high conservation value, the RSPO Principles and Criteria, and the methodological criteria that have been established by different research bodies in Colombia.

High conservation value areas

This criterion virtually guarantees the sustainability of the fragile zones of environmental importance (Table 1).

Table 1. Areas de with a high preservation value (Locally: "AVC")	
Criterion	Variable
AVC 1	Protected areas
	Ecosystems valuation by Endemic Species concentration
	Ecosystem valuation by Endangered Species concentration
	Species wealth map
	Temporally critical species concentration
	Ecosystems wealth
AVC 2	Ecosystems structure: Landscape metrics - Connectivity - Size - Fragment density - Continuity
	Ecosystems function
AVC 3	Rare, peculiar ecosystems
	Intact ecosystems having decreased significantly
	Degraded ecosystems having decreased significantly
	Unrepresented ecosystems
AVC 4	Drinkable water: supplying Micro-basins Basin headwaters. River-source confluences ("river stars")
	Critical areas for erosion control
	Critical areas for flood control
	Water recharge
	Ecosystems as a 'fire barrier'
	Regulating or carbón-capturing ecosystems
	Ecosystems with fishing-related services
AVC 5	Places or communities depending on ecosystems to fill their needs
AVC 6	Shrines/holy sites
	Ecosystems providing resources communities depend upon to preserve their cultural identity

RSPO Principles and Criteria

Fundamentally, the RSPO Principles and Criteria numbers 2, 5 and 7 are the most relevant to the project. Number 7 relates to the responsible development of new plantations, particularly with respect to:

- The independent and participative assessment of social and environmental impacts, prior to the establishment of new plantations (7.1).
- New plantation planning incorporating topographic information as well as soil inspections (7.2).
- Not transforming primary forests or high conservation value areas (7.3).
- Not sowing on steep slopes or marginal soils (7.4).
- Not introducing any new crops in a local population's land without first having obtained their free and well-informed consent, through a documented negotiation process with their own representative institutions.

Methodological Criteria

An example of the above is the land cover map ["*mapa de cobertura de la tierra*"] as implemented and developed for Colombia using the Corine Land Cover methodology which allows us to identify land cover and carry out multi-temporary follow-ups (Figure 2).

The methodology includes five classes organized into hierarchies for the different scales that allows follow-ups in palm-farming zones. Currently, a 1:500.000-scale map is available, and, at the beginning of next year, the 1:100.000-scale map of the entire country should be completed. This will be a joint project with other Sina institutes and the *Agustin Codazzi* Geographical Institute.

In addition, other aspects of climate (rainfall, temperature, radiation, etc.), ecosystems (biogeographical criteria), the geomorphological map and the [land] cover map will be included. All of these being the basic inputs of the ecosystems' map and are already available in Colombia.

This information is in the form of a licensable database which is deliverable to all sectors and all interested institutions through the *Agustin Codazzi* Geographical Institute and the Ideam.

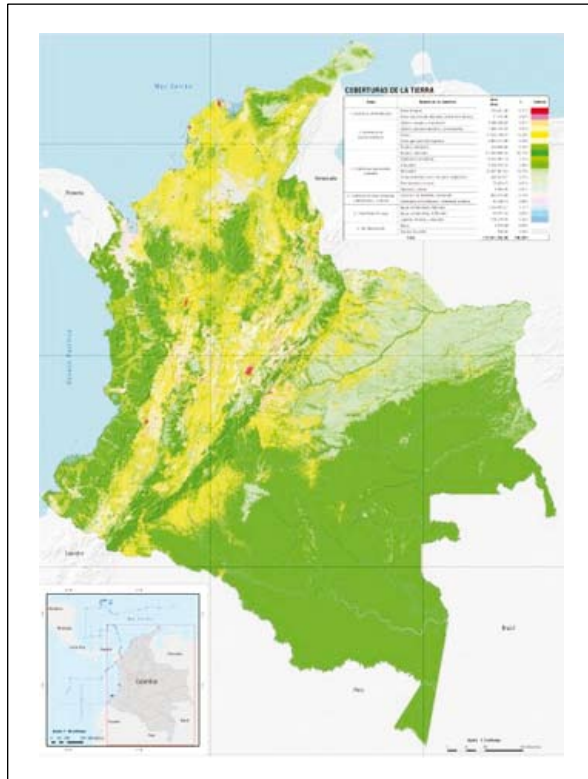


Figure 2. High Conservation Value areas.

Likewise, RUA (Single Environmental Registration) criteria will be incorporated, whereby the variables and indicators for the registration and good use of natural resources are defined. Two pilot zones have been considered for the palm-farming sector, with one at San Alberto, in the Department of Cesar. It is worth mentioning that this methodology is under review and further development.

This Project has a technical committee led by the Ministry of the Environment, Housing, and Territorial Development, with the participation of the Ministry of Agriculture and Rural Development, the Sina institutions, the WWF, and the *Agustin Codazzi* Geographical Institute. As well, other institutions of some importance to the development of the project, such as Parques Nacionales (National Parks) and Corpoica, will be invited onto the committee.