SURINAME

CROSS-CUTTING CAPACITY DEVELOPMENT PROJECT

C C C D

2019 PROJECT OUTLINE

Kaplan Planners Ltd.

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THE RIO CONVENTIONS

In 1992, the Earth Summit was gathered in Rio de Janeiro. A prominent result of the summit was the consolidation of the three Rio Conventions, formed to face the challenges to sustainability and development:

UNITED NATIONS CONVENTION ON BIOLOGICAL DIVERSITY (UNCBD)

- To conserve biological diversity: to safeguard representative ecosystems and habitats, as well as the full diversity of species and genetic materials;
- To use biodiversity in a sustainable manner: usage in a way and rate that resources are not exhausted, but instead renews;
- The equitable sharing of benefits are derived from the access to genetic resources and their use.

UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC)

The UNFCCC aims at stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.

- To reduce greenhouse gas emissions from human activities, key actions to this end are development and promotion of energy-saving measures and the protection of carbon sinks (forests, peat areas, etc.);
- To assess the direct effects of greenhouse gas on climate change (increase of temperature, sea level rise, dryer/wetter seasons, intensification of UV radiation, etc.) and to develop adaptations to cope with or to decrease these effects.

UNITED NATIONS CONVENTION TO COMBAT DESERTIFICATION (LAND DEGRADATION) (UNCCD)

A serious environmental issue in regards to this subject in Suriname is land degradation. Land degradation in Suriname takes expression in a two main ways:

- The massive destruction of land in forested areas as a result of mining – Beyond this destruction of land, the mines cause the destruction of natural conditions, habitats, flora and fauna, and cut off ecological corridors. This leads to environmental pollution that may percolate into the groundwater and rivers.
- Coast Erosion - Processes of coastal retreat and the penetration of seawater into land as well as acute erosion of land adjacent to the coast.

THE CHALLENGES OF THE RIO CONVENTIONS FOR SURINAME

Suriname is one of the greenest countries in the world, with a vast, uninterrupted natural tropical forest, a high diversity of species and substantial contribution to the mitigation of climate change. This natural environment must be protected. Suriname is on the path to fulfill its goals in light of the Rio Conventions, in the form of developing a plan for protection of its natural resources, and treat them as an ecological treasure with long-term economic significance, as well as cultural and social importance. The CCCD Project presents the main planning principles, at the national and district level.

CENTRAL ENVIRONMENTAL ISSUES

Suriname is dealing with a series of environmental challenges, the main ones being the quarry issue, affecting the eastern parts - a vast distribution of gold mines along streams, causing pollution, erosion and damage to biodiversity; constant reduction pf the mangrove streak protecting the coasts. Due to their removal erosion processes are initiated and sea water penetrate the land. This may worsen with the increase in sea level rise; salinization of rivers and agricultural areas, due to excess pumping, which may also increase due to sea level rise; deforestation, currently controlled and moderate, while there is a need to find ways for safekeeping and nurturing of the forest.

PARTICIPATION OF THE LOCAL COMMUNITIES

Any discussion of natural resources in Suriname, and primarily the forests, must take into account the rights of the local communities, with respect for their way of life and culture. The preservation of the forests must be carried out with full participation of the local communities, and to their benefit and development.

SYNERGY BETWEEN THE RIO CONVENTIONS AND ITS IMPLICATIONS

The three Rio conventions deal with various issues - climate, biodiversity and soil degradation, but many of them are shared, in the context of information and basic data, processes and mechanisms, methods of action and implementation recommendations. This way, the fulfillment of the terms of a single Convention would follow the fulfillment of some of terms, of other treaties. Almost every activity relates directly or indirectly to the three conventions. Therefore, the recommendations and conclusions will also be largely shared: Recommendations regarding the completion of information gaps in all areas will directly contribute to the response to the conventions.

CROSS-CUTTING CAPACITY DEVELOPMENT PROJECT

Suriname is one of many nations to have signed the Rio Conventions. The process of adaptation and preparation to meet the requirements set in the conventions is complicated, and has spread across multiple stages and a significant amount of time. The CCCD Project follows the National Capacity Self-Assessment (NCSA) of Suriname, which has concluded that there are capacity constraints and gaps, posing challenges in fulfilling environmental commitments under the Rio Conventions and otherwise. The CCCD Project is targeted towards addressing these gaps, by supporting interventions to strengthen government structures and civil society mechanisms, to improve the institutional framework set up to implement the Rio Conventions and to deliver global environmental benefits.

Current literature has laid theoretical background to the CCCD Project, mainly in policy related guidelines. Most of them discuss the theoretical foundations. However, there is a need to address the emergence of challenges and issues, in detail and in specific areas.

The CCCD Project constitutes a continuation and additional layer in the country's preparations for coping with the Rio Conventions, adding practical, applicable content and a geographical regional focus. This is the way to divide a large and complex issue into sub-issues, topics and sub-topics, and regional division. Thus, it is possible to focus on each region, and to present proposals, alternatives and suitable ways of coping with challenges.

The CCCD Project includes a series of maps, depicting the existing physical, natural and social conditions in Suriname, analyzing the situation and discussing the challenges. Below is an initial version of the "Road Map", including proposed zoning and desired development directions. This form of coping is a paramount tool for responding to the requirements of the Rio Conventions.

The proposed planning guidelines and the road map are not a substitute for a practical and immediate plan for Suriname. This is an environmental strategy from which detailed plans are to be drawn up in each and every area, resulting in plans inspired by the general outline.

THE TWO BRANCHES OF SURINAME'S CCCD PROJECT

1. Creation of a Database

At the foundations of all development and planning matters are information systems. Information is to stand at the basis of recommendations, as a factual and scientific ground, and the planning system must to navigate and direct planning policies, consultation and recommendations in every matter.

In Suriname there are multiple, abundant databases in the fields of environment, land resources, ecology and infrastructure. Additionally, planning and environment issues and jurisdictions are distributed between different authorities in Suriname. The project aims to create a joint platform on issues of environment, planning and regulation, based on the aforementioned databases.

Frameworks for cooperation, exchange of information, coordination and consultation between entities is Suriname are key in concentrating planning efforts in a comprehensive vision, and in forming a national perspective. The goal was to amalgamate the vast material, and to form a unified, accessible and clear language for stakeholders and decision makers.

A central goal of the project was the creation of an extensive, organized mapping of all Suriname's natural resources, based on existing knowledge. Currently, many databases are to be found in different hands in Suriname: government ministries, authorities, research institutions and academic institutions. The CCCD Project aspired to gather them under one roof, in an environmental-ecological data bank, to be at the disposal of decision makers, research institutions, development authorities and the general public. The data bank is composed of two branches: GIS database and a document database. The GIS database is designed to be compatible with the existing GONINI online database.

GATHERING EXISTING DATA

Information has been collected from all sources possessing it, processed into a unified, assorted and standardized protocol. The geographical data was organized into a unified in GIS format, consolidated in the form of a planning environmental atlas, as a basis for all planning and future policy formulation in Suriname.

ENVIRONMENT

Ecology, ecosystem units, forestry, land and water resources

STATUTORY DATA

Administrative maps, spatial planning

SOCIETY

Mapping communities and social trends

LAND USE

Infrastructure, built areas, agriculture, etc.

Environment

Land Use

Statutory Data

Society

LAND USE ANALYSIS AND MAPPING

Land uses are the forms of land cover, either natural - such as forests, swamps and water bodies - or man-made, such as towns, agricultural spaces. Land-use maps reflect the current situation.

The creation of a land-use map is an essential condition for planning systems. It is the basic starting point from which stems change or improvement of the current situation via rules and regulation.

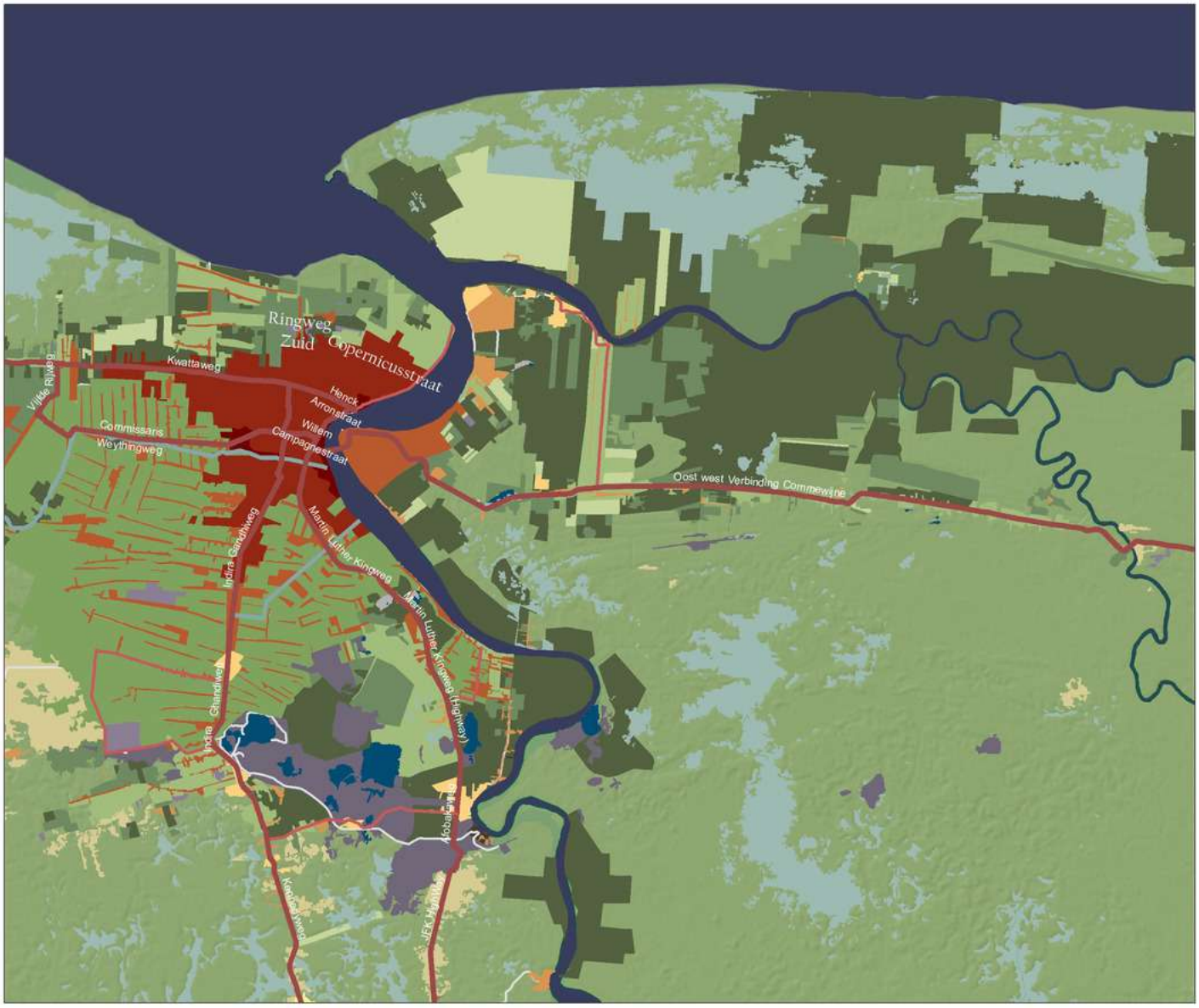
A land-use map reflects a current existing situation and does not involve future plans for land use. For instance: a tropical forest is a form of natural land cover, while a nature reserve is a designation of planning intention.

The creation of a land-use map includes analysis and interpretation of aerial or satellite imagery, examination of maps and any relevant material that can exhibit the surroundings with precision. This can be achieved by human or computerized deciphering of the satellite imagery. It is best to integrate both methods.

A land-use map for 2015 was prepared for the entire territory of Suriname, based on work conducted by SBB and drawing on the previous intensive efforts by SBB staff. A Land-use map marks and defines natural resources and anticipates threats. It calculates opportunities and hazards, suggesting ways to solve possible difficulties using planning means.

LAND USE ANALYSIS

CLASSIFICATION & DISTRIBUTION



Built Area
- Industrial
- Urban
- Sub Urban
- Rural
- Town

Agriculture
- Large Scale
- Small Scale
- Abandoned (A)
- Pasture

Infrastructure
- Airport
- Port
- Woodlanding

Mining
- Bauxite
- Building Material
- Unclassified Mine
- Abandoned Mine

Human Forest
- Shifting Cultivation

Natural Non Forest
- River
- Open Swamp (N)
- Savannah

Natural Forest
- Abandoned (B)

Roads
- Primary Road
- Secondary Road
- Local Road

0 2.5 5 7.5 10

2. Environmental Planning

COMPREHENSIVE ENVIRONMENTAL PLANNING IS A CENTRAL, LEADING STRATEGY IN COPING WITH CLIMATE CHANGE ON THREE LEVELS:

- Comprehensive planning provides a wide perspective, encompassing the entirety of subjects - including society, ecology and natural resources - as well as all of the country's area.
- Planning is intended to encourage contiguous development, towards existing development, preventing unnecessary damage to forests, their consecutive areas and their ecological values.
- Comprehensive planning is designed for long periods of time, to achieve long-term results, not for quick, immediate results, who may potentially cause damage in the long run.

The government of Suriname has called for the establishment of a central planning system (land use policy). The CCCD Project forms an initial outline - the Roadmap - to be used as a basis for further work.

ECONOMIC ANALYSIS

1

Proposals for funding sources and assisting Suriname's global environmental contribution, mainly in forestry and biodiversity.

2

Economic aspects of sustainable development in various areas:

- Sustainable agriculture, supporting the environment rather than causing damage.
- Prioritization of public transportation, mainly in the Paramaribo metropolitan area (where dense transportation is already causing environmental effects and damages GDP).

METHODOLOGY & CONCEPT

PRINCIPLES

The proposed development principles follow the classical rules of sustainable development, with a special emphasis on meeting the requirements of the Rio Conventions. The main principles presented are:

1 Focused, concentrated and moderate development, whose impact on natural resources is very limited.

2 Sustainable development, i.e. usage of methods that make use of parts of resources necessary for present needs, while leaving enough resources for future generations, and for the general good.

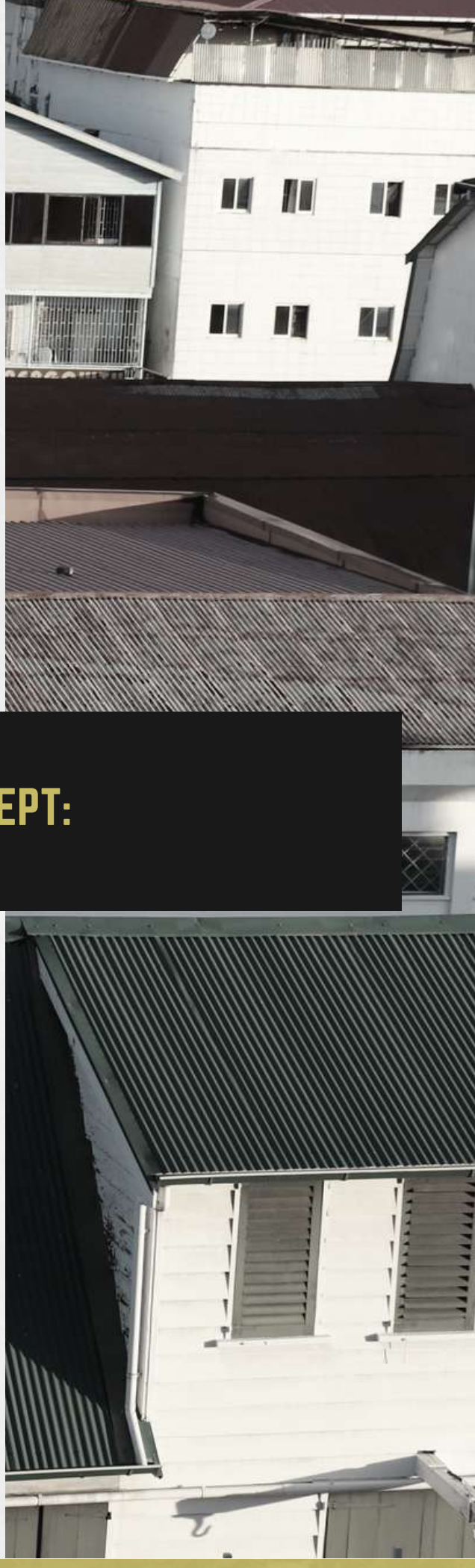
3 Development based on solid knowledge and certainty regarding its results. Development under conditions of uncertainty, which we are unable to predict, is not sustainable development.

4 Equity development, enabling growth and advancement of weaker populations, with results reaching all population sectors.

5 Development preferring the use of renewable resources over perishable resources, which also cause ecologically negative consequences.

PLANNING CONCEPT

The concept formed includes several aspects: recognizing the special situation of Suriname in terms of the development concept and natural resources; focusing development along specific axes, especially the east-west axis - Coronie-Albina, and the north-south axis - Paramaribo Pokigron; development will focus on specific locations along the aforementioned routes, especially around the major cities, the industrial and mining centers, tourism and agriculture.



THE ADVANTAGES OF THIS CONCEPT:

1. Concentration of efforts will lead to achieving efficiency and high economic return to the economy, compared to spreading efforts over a large area.

2. Convenient and close access to most of the populated areas. The two main roads, and the secondary arteries that exit from them, provide convenient access to close to 90% of the population.

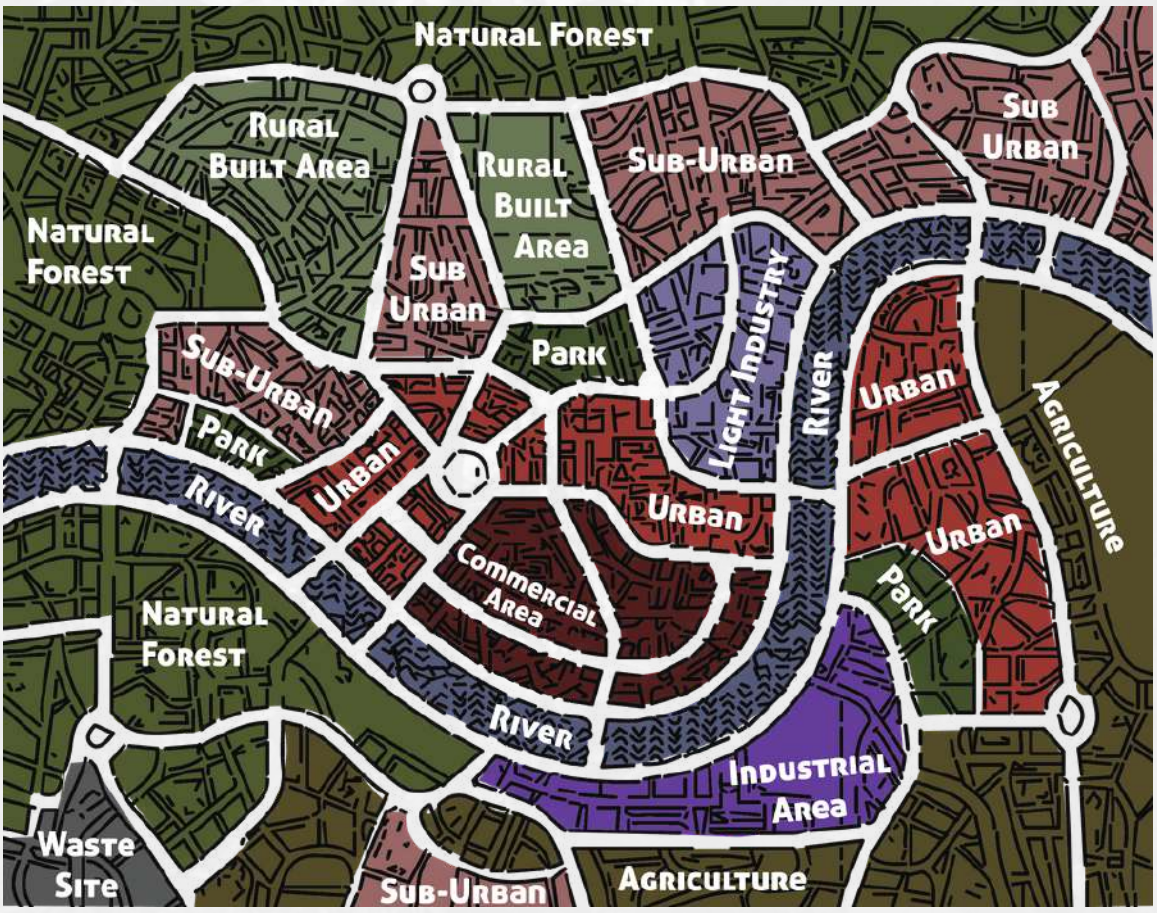
3. Preservation of the surface resources, forests, swamps and rivers in the reserved areas, the Blue Belt and the Interior.

TOOLS AND MEASURES FOR ENVIRONMENTAL PLANNING

The planning work process involves dealing with issues and themes related to the patterns of use of space. The forms in which humans exploit their environment has implications on their own lives, as well as on future generations and surrounding elements, such as the physical environment, flora and fauna. Some prominent examples of planning themes are brought as follows.

ZONING

The main tool in the field of spatial planning is separation between different land uses. It has an impact on different levels of the process. Zoning is a very important mean to guiding development to proper places while protecting and nurturing of natural resources. It means to create a distinction between different types of lands. A distinction must be made between different meanings of the term zoning, separate for land cover and for land use designation.



An example of how zoning creates spatial order: the industrial zones are separated by greenery from the residential areas, there is a main urban center in the heart of the city, and secondary centers serving the residential neighborhood, urban parks scattered throughout the city. The legend expresses the uses of each area. The provisions of the plan regulate the terms and conditions for each of the purposes and uses.

CONTINUOUS DEVELOPMENT

One of the main principles for sustainable planning.

New construction linked to an existing settlement.
The Result: Minimal disruption of natural area. Using existing infrastructure instead of constructing a new one. Significant reduce of needed resource.

This principle demands that additional construction and development (for example construction of a new neighborhood) will take place closely, and in contact, with existing development centers.

That way, the impact and disruption to natural areas, will be concentrated, near an existing disturbed area - In contrast to the dispersion of development centers, which creates many centers of disruption, and the separation of ecosystems.

In addition, continuous development along the existing routes can significantly reduce the costs of construction and development, due to easy material transportation and accessible construction sites.

CONCENTRATED DEVELOPMENT

Prevention of Fragmentation and isolation of Open Areas

THERE ARE TWO CLASSICAL APPROACHES TO THE SPATIAL OUTLINE:

DIFFUSE, WIDE-SPREAD DEVELOPMENT MODEL

This is an expanding model, reflecting the desire to control of large areas, with the misconception that space is "infinite", and can be "conquered" by man. This approach is usually contradicted to the ideas in the Rio Conventions, since it increases damages to natural areas, negatively affecting biodiversity, leads to fragmentation. This form of development creates detached natural "islands" and contributes to the reduction of carbon sequestration capacity.

FOCUSED DEVELOPMENT MODEL

In defined centers, concentrating efforts on a small area. The advantage of this approach is its efficiency and its contribution for preventing damage to natural areas and to reduction of resources exploitation. This approach will harm natural areas on a relatively small scale, prevent the construction of roads that by nature disconnects natural areas. Damage to biodiversity will be limited. This approach is consistent with the derivatives of the Rio conventions.

CONCENTRATED DEVELOPMENT

ADVANTAGES

1. Efficiency and high economic yield, compared to distribution of efforts across a large space.

2. Accessibility and proximity to most population centers. The two main routes and secondary routes connecting to them provide convenient accessibility for more than 90% of the population.

3. Preservation of natural resources, forests, swamp areas and rivers in reserved areas, the Blue Belt and the Interior.

SOCIETY, COMMUNITY AND TRAINING

One of the main principles of sustainable development is adapting a broad perspective, an encompassing perception of the space, environment and society from which it is composed. This is a contrast to a local approach, preferring specific, narrow interests. Encompassing planning should include and encourage participation of all population groups. This leads to the need for an in-depth familiarity with local society, communities of all forms in all settlement patterns, their lifestyles, abilities and aspirations.

PUBLIC PARTICIPATION

1 Cooperation between individuals on a sole settlement level - the individuals residing in a settlement have different and varied interests, whether they are individuals, families or communities, Of course for each form of settlement there will be defined groups composing it, requiring separate policy for each group.

2 Level of sole community settlement of the Interior - particular-individual approach is not optimal for residents. Traditions kept in regards to land ownership, where single plots belong to individuals or families, solidify the division of small plots and prevent the advantages of cooperation on concentration of efforts.

TRAINING

The preparation of the CCCD Project involves a great amount of professional knowledge from many different disciplines, from natural science fields to social fields: spatial planning, policy making, economics, geology and soil, botany, and more. Various aspects of this knowledge are necessary for professional staff of authorities and public representatives in Suriname, for implementation of the courses of actions proposed and outlined in the framework of the current project. To this end, an extensive array of training courses has been prepared and continues to be executed in Suriname. Workshops and courses are being conducted by the project team, in many aspects relevant to the project. Separate courses were prepared for government ministries, research and academic institutions, and NGOs, and to representatives of the public and regional government.

ROAD MAP

DEVELOPMENT LAYOUT FOR SURINAME

The Roadmap is a general outline for environmental planning in Suriname. The map expresses principles of sustainable development and the Rio Conventions in the following measures:

Concentration, improvement and direction of development to defined, limited areas.

Development is concentrated around existing settlements, roads and disrupted areas such as abandoned quarries.

Determination of "search areas" - potential areas for development for residence, industry, agriculture, tourism, etc. for future generations.

Prevention and limits on development in natural areas, prevention of segmentation of natural areas.

Delineation of sensitive areas, proposals of potential for new reserves, to represent all landscape units in Suriname and to its rich biodiversity.

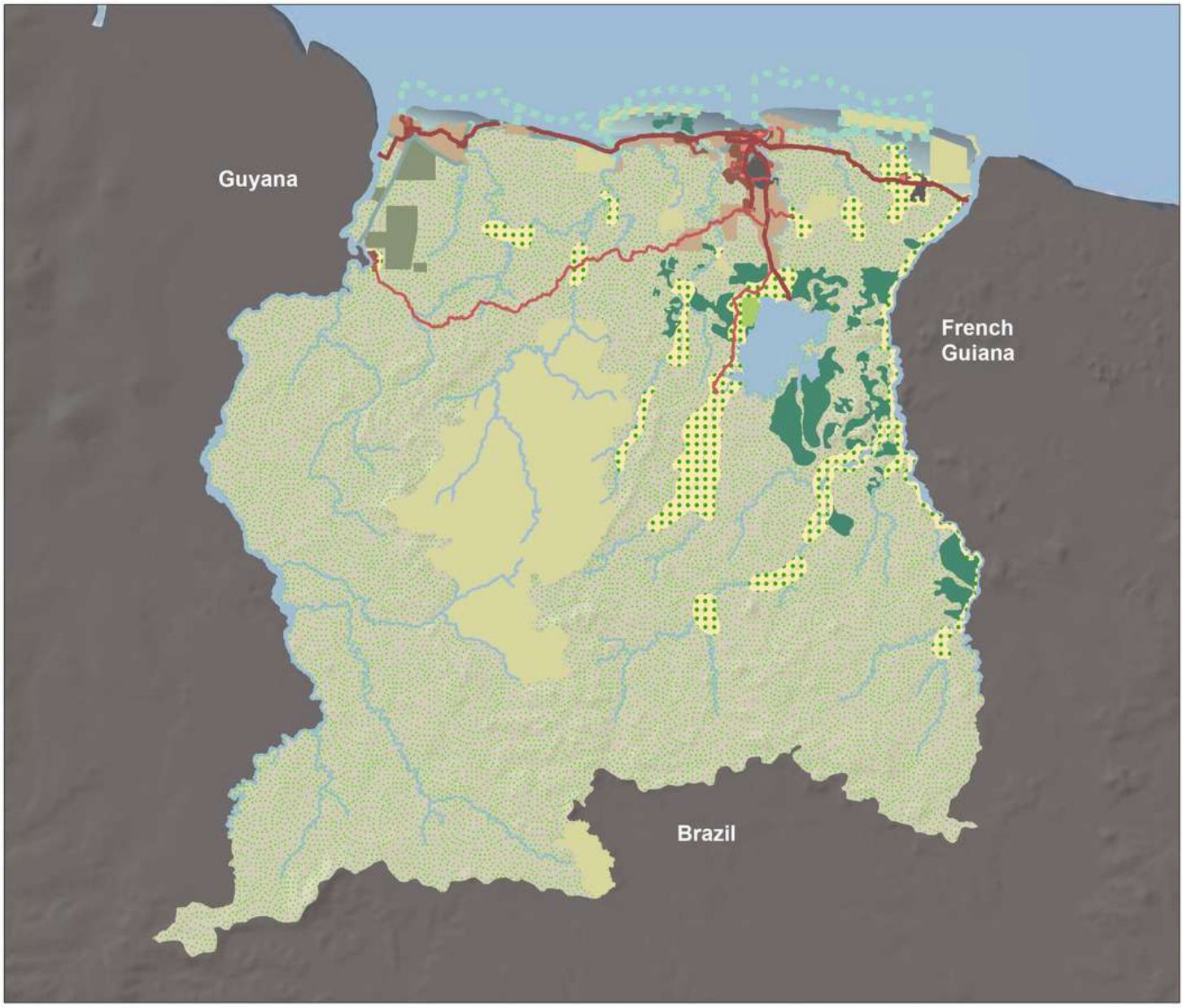
Directing of development along two main routes: north-south from Paramaribo to Brokopondo Lake, and east-west, along which are spread the main cities and towns.

A special emphasis will be given to the Paramaribo metropolitan area, empowering the city's strengths, directing development south towards Lelydorp and Brokopondo Lake, and limitation of development to the north and east.

Rehabilitation and revival of the city center in Paramaribo, by integration of housing and tourism to the historic area, linkage of the river promenade to the city center and prioritization of public transportation.

ROAD MAP

PLANNING OUTLINE FOR SURINAME



Development

- Built Area for Densification
- Contiguous Development Area
- Area for Future Potential Intensive Development (agriculture, recreation...)
- Area for Future Potential Extensive Development
- Development Oriented Rehabilitation
- Canal

Conservation

- Protected Area
- MUMA - Multiple Use Management Area
- Naturel Park
- Proposed Protected Area
- Blue Belt
- Nature Oriented Rehabilitation
- Bodies of Water
- Natural Areas of the Interior and Coastal Plain

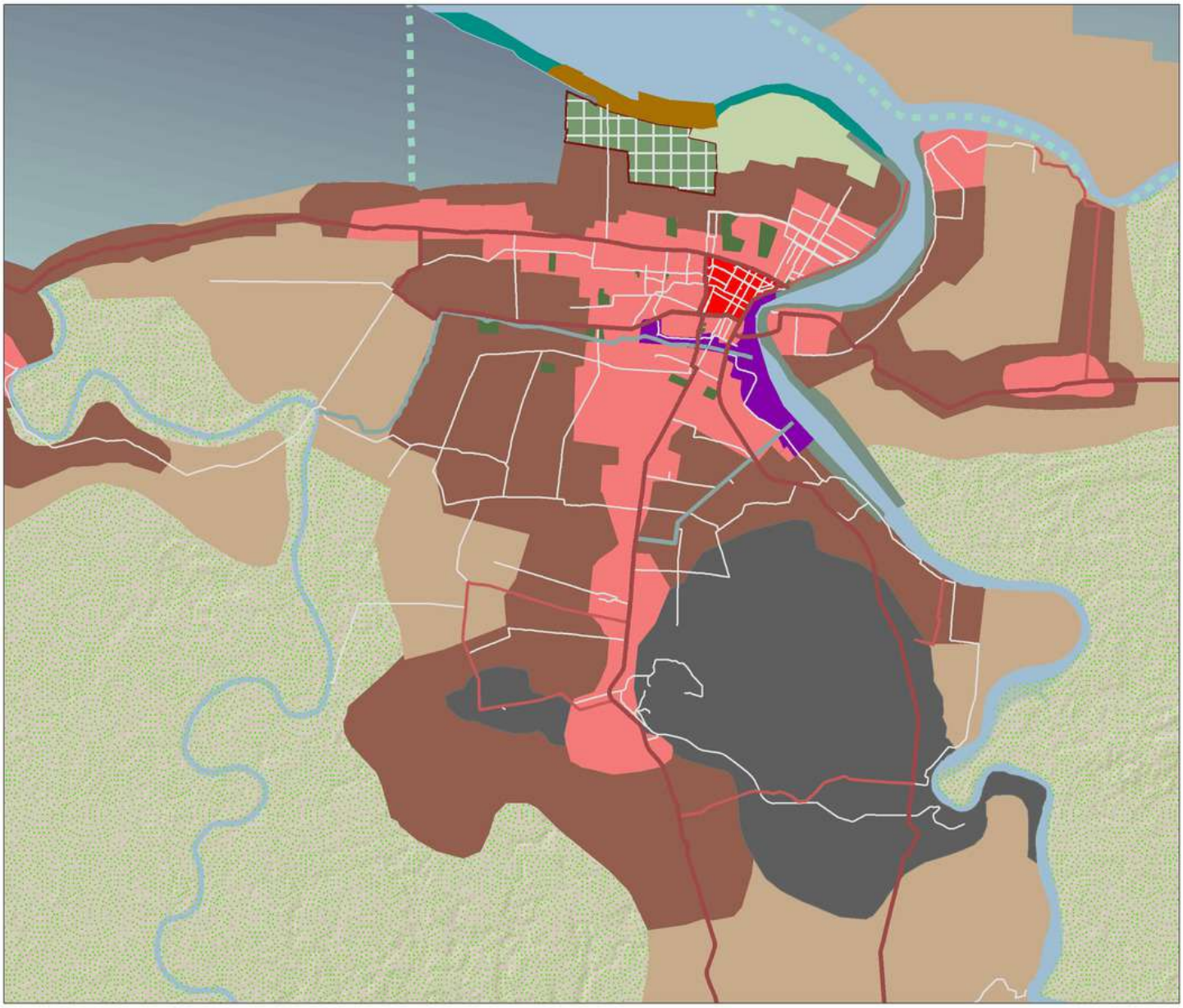
Roads

- Primary Road
- Secondary Road

0 KM

ROAD MAP

PARAMARIBO METROPOLITAN AREA



National Roadmap Outline

Development

- Historic City Center
- Built Area for Densification
- Light Industry and Employment
- Development Oriented Rehabilitation
- Contiguous Development Area
- Area for Future Potential Intensive Development (agriculture, recreation...)
- Canals

Conservation

- MUMA - Multiple Use Management Area
- Preservred Natural Area
- Blue Belt
- Urban Park
- Rural Area - Cessation and Rehabilitation
- Riverfront Green Promenade
- Mangrove Conservation & Rehabilitation
- Muddy Area for Rehabilitation
- Bodies of Water
- Natural Areas of the Interior and Coastal Plain

Roads

- Primary Road
- Secondary Road
- Local Road

ADAPTATION STRATEGY

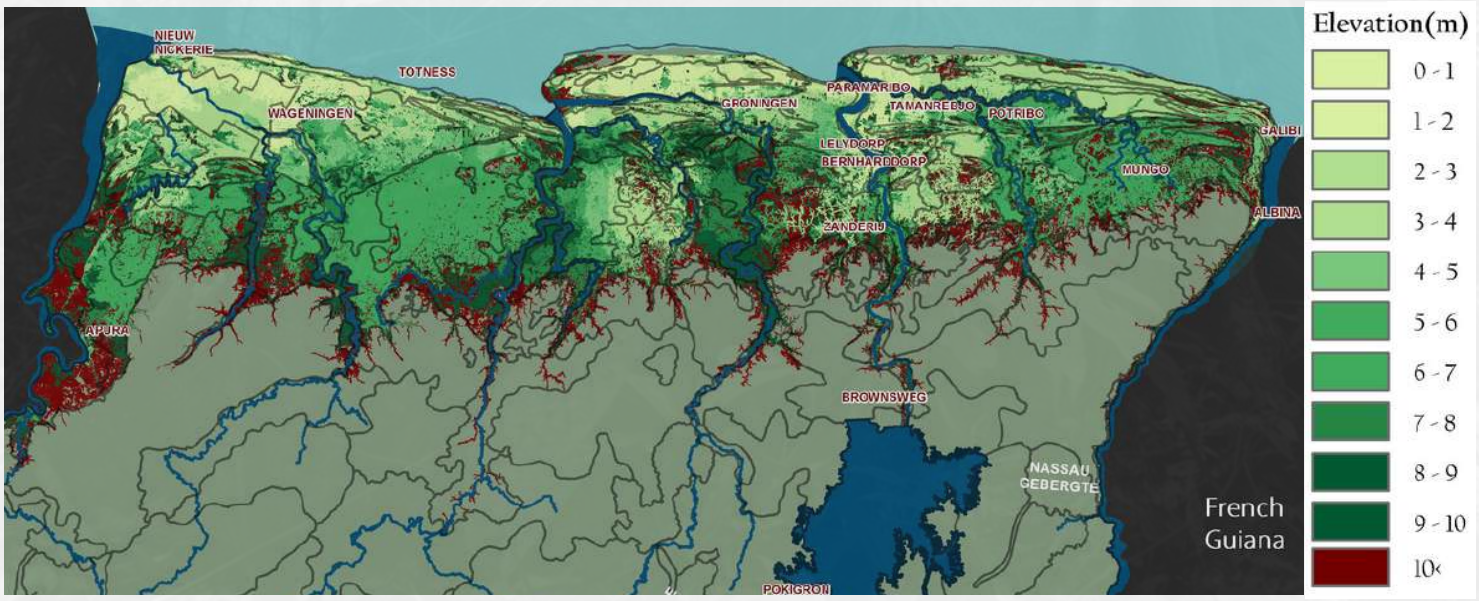
IN THE COASTLINE

The majority of Suriname's population lives on the coastline, the location of most of the cities, agricultural areas and road and infrastructure systems.
The following map presents the surface elevation, in meters above sea level. The map shows that the coastline elevation is between 0-10 meters. Vast areas are low, 03- meters above sea level, including in the Paramaribo metropolitan area and are prone to floods - both in a sea level rise scenario and a scenario of storms and floods.

The proper adaptation strategy would mainly include the prevention of development in low areas, prone to flooding, and directing development towards higher areas - such as sand ridges - as well as taking measures to protect lower built areas. These measures include regulation and drainage, and quick removal of flooding waters.
This is a classic process of proactive planning, set to adapt towards future scenarios, and potentially significantly saving resources in the future.

SURINAME COASTAL AREA

ELEVATION DISTRIBUTION FROM 0-10 M



Steering Committee

NIMOS

Mr. Cedric Nelom, General Director
Mr. Donovan Bogor, Field Officer
Ms. Gina Griffith, Legal Advisor
Ms. Inez Akkerman, Coordination Officer

UNDP

Mr. Bryan Drakenstein
Mr. Armstrong Alexis
Ms. Anuradha Khoenkhoen

Planning Team

Kaplan Planners LTD

Moti Kaplan, Planner, Team leader
Ellen Naarendorp, Environmental Expert
Winston Caldeira, Economist
Dr. Salomon Emanuels, Sociology Expert
Dr. Efrat Elron, Sustainable Agriculture
Dr. Dafna DiSegni, Economist
Dr. Arik Rosenfeld, Remote Sensing

Assaf Kaplan, GIS Expert
Mark Shteyngauz, Geography Expert & Editor
Nadav Hurvitz, Graphic Designer
Liora Darom, Graphic Designer
Amy Oppenheimer-Abitbol, Researcher & Editor
Shiri Heffer, Economist

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Winston Lackin - Cabinet of the President, National Security and Environment
Cedric Nelom, Donovan Bogor, Gina Griffith, Inez Akkerman, Shannon Murg -NIMOS
Brian Drakenstein, Haidy Malone - UNDP
Eliza Zschuschen, Ewald Poetisi, Theo Wong -AdeKUS
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