

# IIRSA

## GUIANA SHIELD HUB GROUPS



# Contents

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- Business Vision: demographics, infrastructure, resource base, industrial base, strategic considerations
- Groups of projects: adequacy of infrastructure, Map of groups, Area of influence
- Groups in detail: strategic function, maps, area of influence, dominant activities

# Business Vision: Demographics

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- Total population: 14.869.100
- Main Cities: Manaus (1.600.000), Caracas (5.000.000), Macapá (282.000), Georgetown (350.000), Paramaribo (218.000), Boa Vista (230.000), Ciudad Guayana (800.000), Cayenne (150.000), Ciudad Bolivar (400.000)
- Total area is 2,699,500 square Kilometers
- Average density is low, 5.32 inhabitants per sq. Km., with a high of 3696 (Caracas) and low of 1.81 (Roraima)
- On average, social indicators reflect low middle income countries, although substantial disparities exist among sub-regions

# Business Vision: Infrastructure

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- The road infrastructure is more developed in a north-south direction whereas road communication is weak or inexistent in the east-west direction
- The two largest cities, Caracas and Manaus, are well connected through a paved road (Group 1)
- There is power connection between Boa Vista and the Venezuelan System, but the rest of the countries' electric systems are isolated
- Suriname lacks sea ports. Guyana's ports are subject to tidal cycles
- Part of the region lacks fiber optic telecommunications
- Trinidad acts as a *de facto* hub for air transportation

# Business Vision: Resources

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- The area is rich in natural resources: large reserves of bauxite, iron ore, gold, diamonds and timber exist within its boundaries
- There are huge proven reserves of oil and natural gas (Venezuela and Brazil) and potential for developing additional offshore fields (Guyana, Suriname)
- Hydroelectricity is abundant, and the region has potential for developing additional power from this source
- There are large natural forests with potential for the production of precious woods

# Business Vision: Industrial base

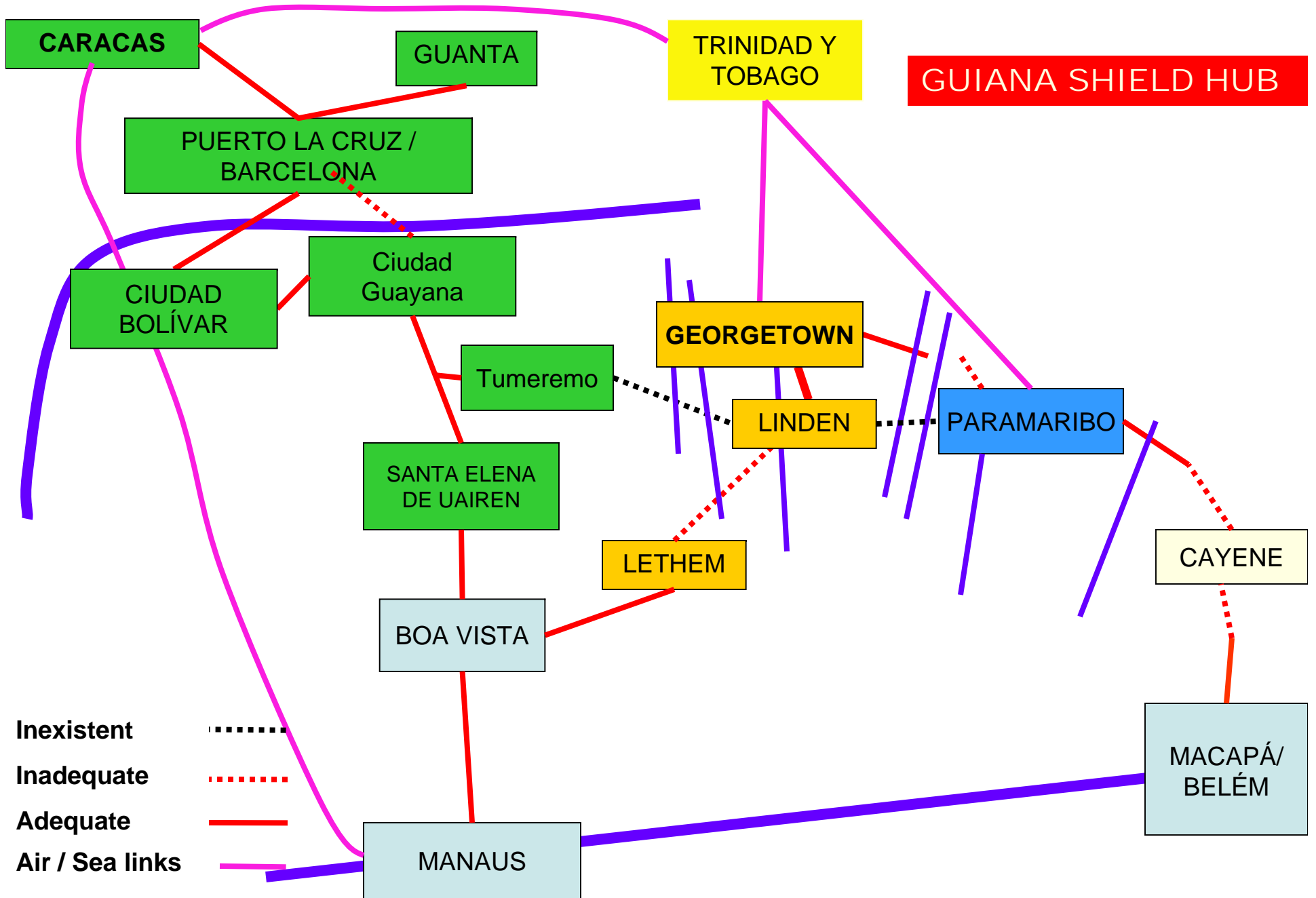
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- There are three industrial poles within the boundaries of the hub: Manaus (technology and light manufacturing), Ciudad Guayana (heavy industries and metal processing) and Puerto La Cruz (petrochemicals and fertilizers)
- In the rest of the hub most industrial facilities are oriented towards domestic consumption
- The region includes many sites that are suitable for developing tourism, including ecotourism and Caribbean
- There are facilities for wood processing in Guyana and large planted forests in Monagas (Venezuela)

# Business Vision: Strategic Considerations

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- Despite neighborhood intraregional trade is minimal, with the exception of the axis Manaus-Caracas
- The region possesses significant potential for industrial development based on their natural resources:
  - The Bauxite-Alumina-Aluminum chain
  - The Oil/gas-Petrochemicals-fertilizers chain
- Improved infrastructure could allow the area to exploit their economic complementarities so as to serve the largest consumption poles and to integrate productive chains across international borders in order to attain global economies of scale





# Eje del Escudo Guayanés Agrupamientos de Proyectos

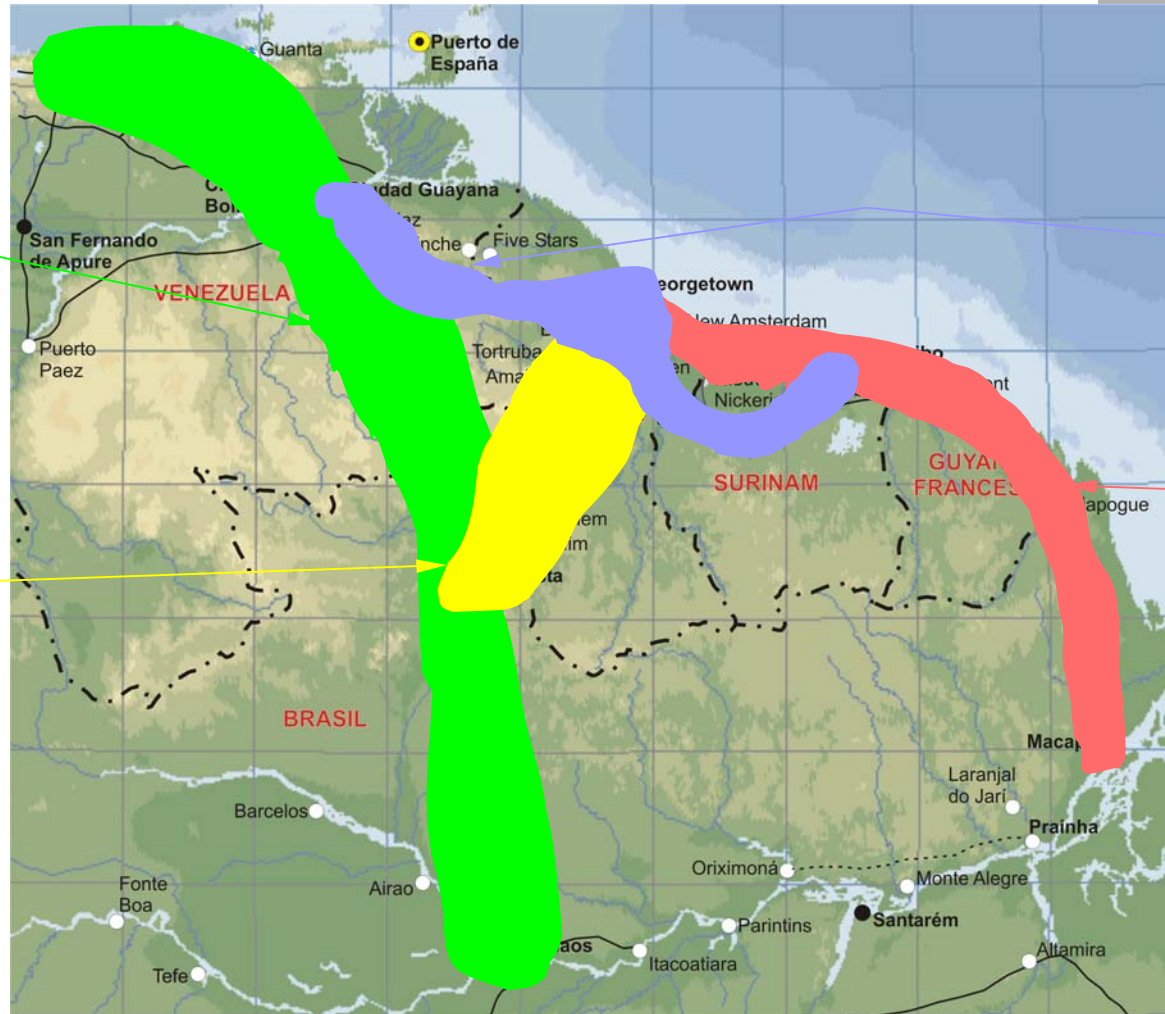


Grupo 1: Interconexión  
Venezuela - Brasil

Grupo 2: Interconexión  
Guyana - Brasil

Grupo 3: Interconexión  
Venezuela  
(Ciudad Guyana)  
– Guayana (Georgetown) –  
Surinam (Paramaribo)

Grupo 4: Interconexión  
Guyana – Surinam –  
Guyana Francesa - Brasil



Area of influence

**IIRSA**



**GROUP 1: Interconnection Brazil -  
Venezuela**

# Strategic Function of the Group

IIRSA

- To develop potential economic sectors like the heavy and durable goods industries, mining and jewellery, agribusiness and tourism (ecotourism and Caribbean beach tourism), taking into account the existing paved road Manaus - Caracas and transmission line between Guri and Boa Vista.
- Type of Group: Consolidated

# Guiana Shield Hub

## Group 1: Interconnection Venezuela - Brazil

# IIRSA



Bimodal Bridge over The Orinoco River

System for navigational support in the Orinoco River

Fiber optics or another appropriate technology interconnecting Caracas with the north of Brazil

Waterway between the Negro and Branco Rivers connecting Manaus and Boa Vista

Improvements to the Port of Guanta

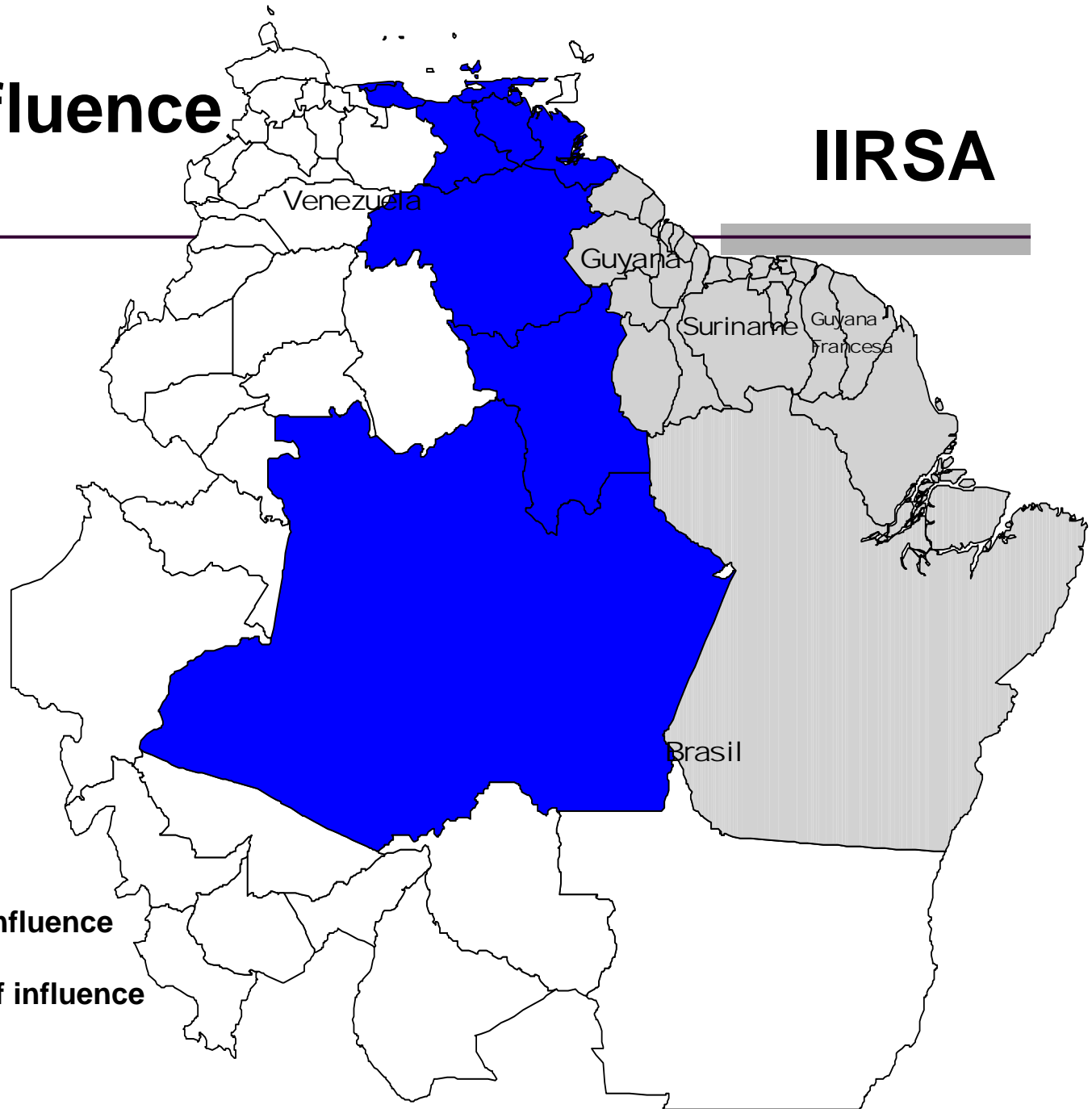
Railroad connecting the Port of Guanta (or a new one) to Ciudad Guayana

**Anchor project:**  
Caracas -Manaus Paved road (Existing)

Capacity expansion of Guri – Boa Vista's power line

# Area of influence

# IIRSA

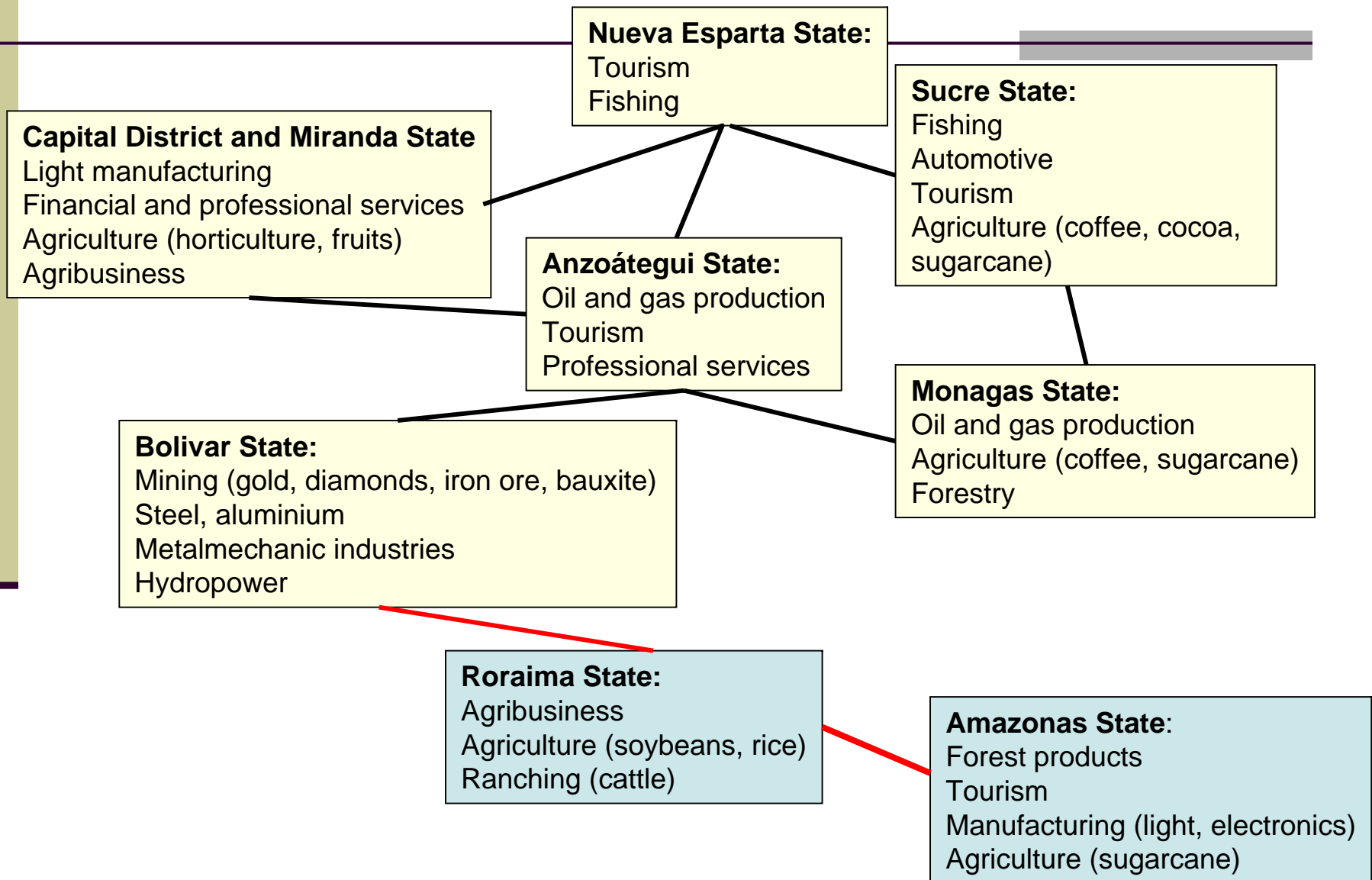


Hub's Area of Influence

Group 1 Area of influence

# Dominant activities

# IIRSA



# Total investment

# IIRSA

	US \$ Millions
<b>Caracas – Manaus Existing Road</b>	
Negro – Branco rivers waterway interconnecting Manaus to Boa Vista	
Deep water port in the northeastern Venezuela Caribbean Coast or improvement of the existing Port of Guanta	
Railroad interconnecting the above mentioned port and Puerto Ordaz (Orinoco River)	
Bimodal second bridge over the Orinoco river (under construction)	
Orinoco waterway navigation support system	
Expansion of the capacity of the existing transmission line Guri – Boa Vista	
Fiber optics lines or another appropriate technology interconnecting Caracas to the North of Brazil	





**IIRSA**

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**GROUP 2: Interconnection Brazil –  
Guyana**

# Guiana Shield Hub

## Group 2: Interconnection Guyana - Brazil



Tortuba Hydroelectric Plant (1000 MW) and transmission line to Boa Vista y Manaus (pending feasibility studies)

Amaila Hydroelectric Plant (150 )MW and transmission line to Georgetown

Fiber optics line or another technology to interconnect Boa Vista and Manaus to existing international underwater cable system

Deep water port in northern Guyana

Improvement of Georgetown's Access

Demerara River crossing

**Anchor Project: Boa Vista – Bonfin – Lethem – Linden – Georgetown road**

Bridge over the Itakutu River (Brazil - Guyana border)

Industrial investments in Boa Vista: Cellulose, Soybeans, instant coffee an meat processing plants

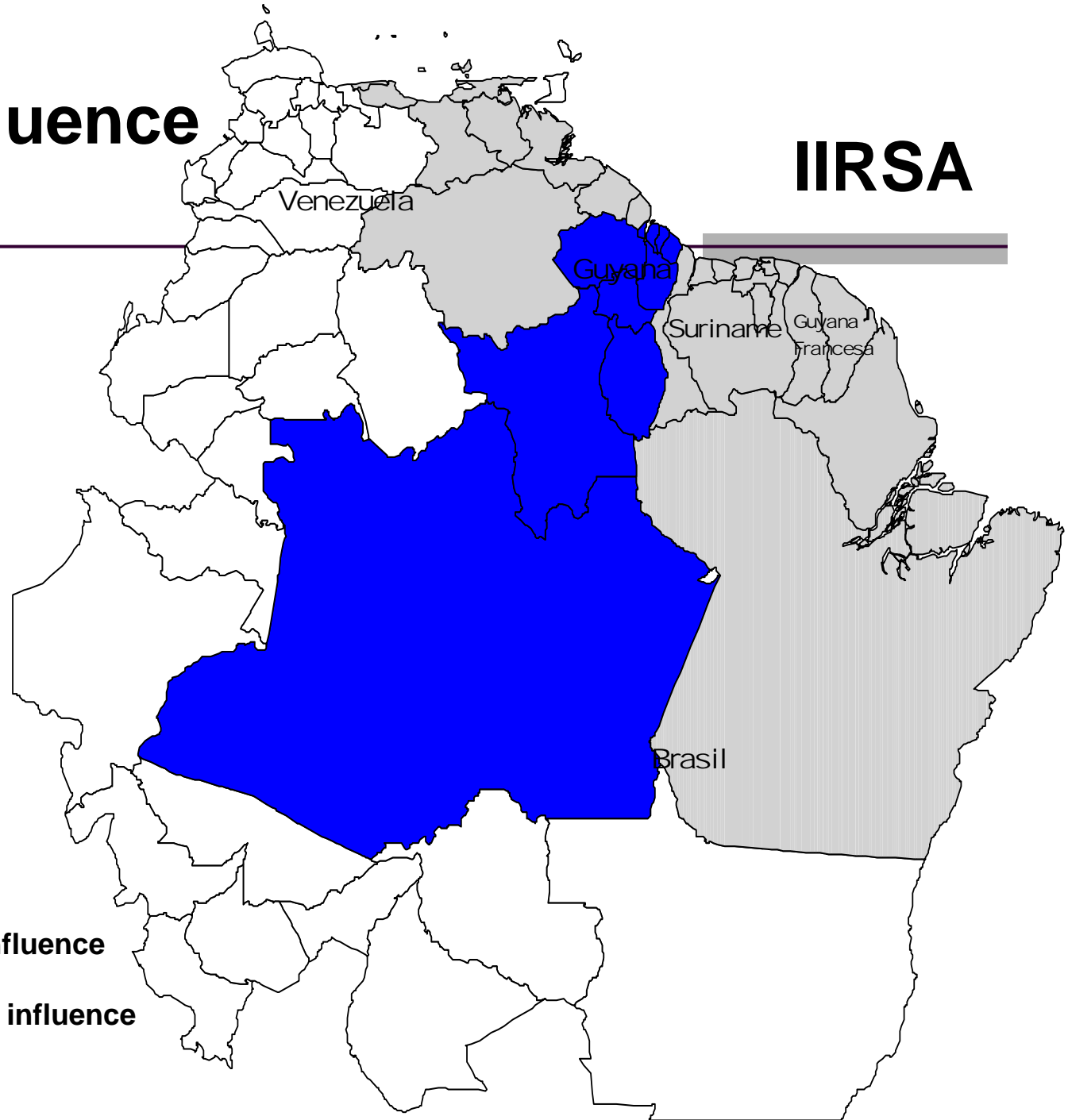
# Strategic Function of the Group IIRSA

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- To support sustainable development and integration between the Brazilian states of Amazonas and Roraima, and Guyana, through the consolidation of the infrastructure linking both countries
- Type of group: Emergent

# Area of influence

# IIRSA

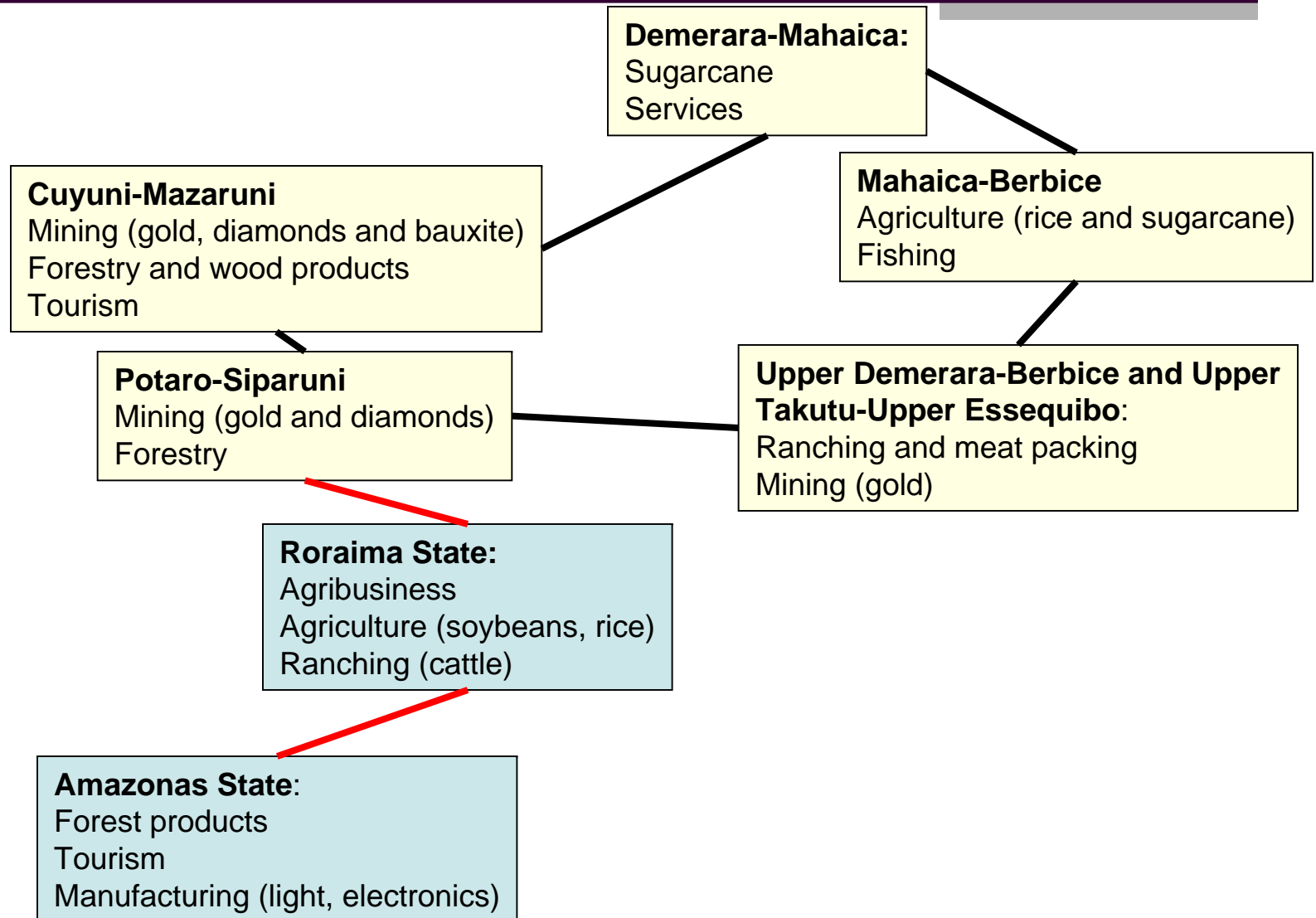


 Hub's Area of Influence

 Group 2 Area of influence

# Dominant activities

# IIRSA



# Total investment

IIRSA

	Million US \$
<b>Boa Vista-Bonfim-Lethem-Linden-Georgetown</b>	12
Arraia river bridge (State of Roraima)	
Itakutu river bridge (Brazil - Guyana border)	
Deep water port in Guyana (pending further study)	
Amaila 150 MW hydroelectric power plant and transmission line to Georgetown to replace existing diesel power generation	300
Tortruba 1000 MW hydroelectric power plant and transmission line to Boa Vista and Manaus (pending upon private investment towards an aluminum smelting plant in Guyana and/or the Brazilian interest to bring energy to the North region from Guyana)	1850
Fiber optics lines or another appropriate technology interconnecting existing international submarine cable system to the cities of Boa Vista and Manaus	
Demerara River crossing	
Improvements to Georgetown's access	
Industrial investments in Boa Vista: Cellulose plant (underway), soy processing, instant coffee, and meat packing plants (pending upon private investment interests)	

**GROUP 3: Interconnection  
Venezuela – Guyana**

# Strategic Function of the Group

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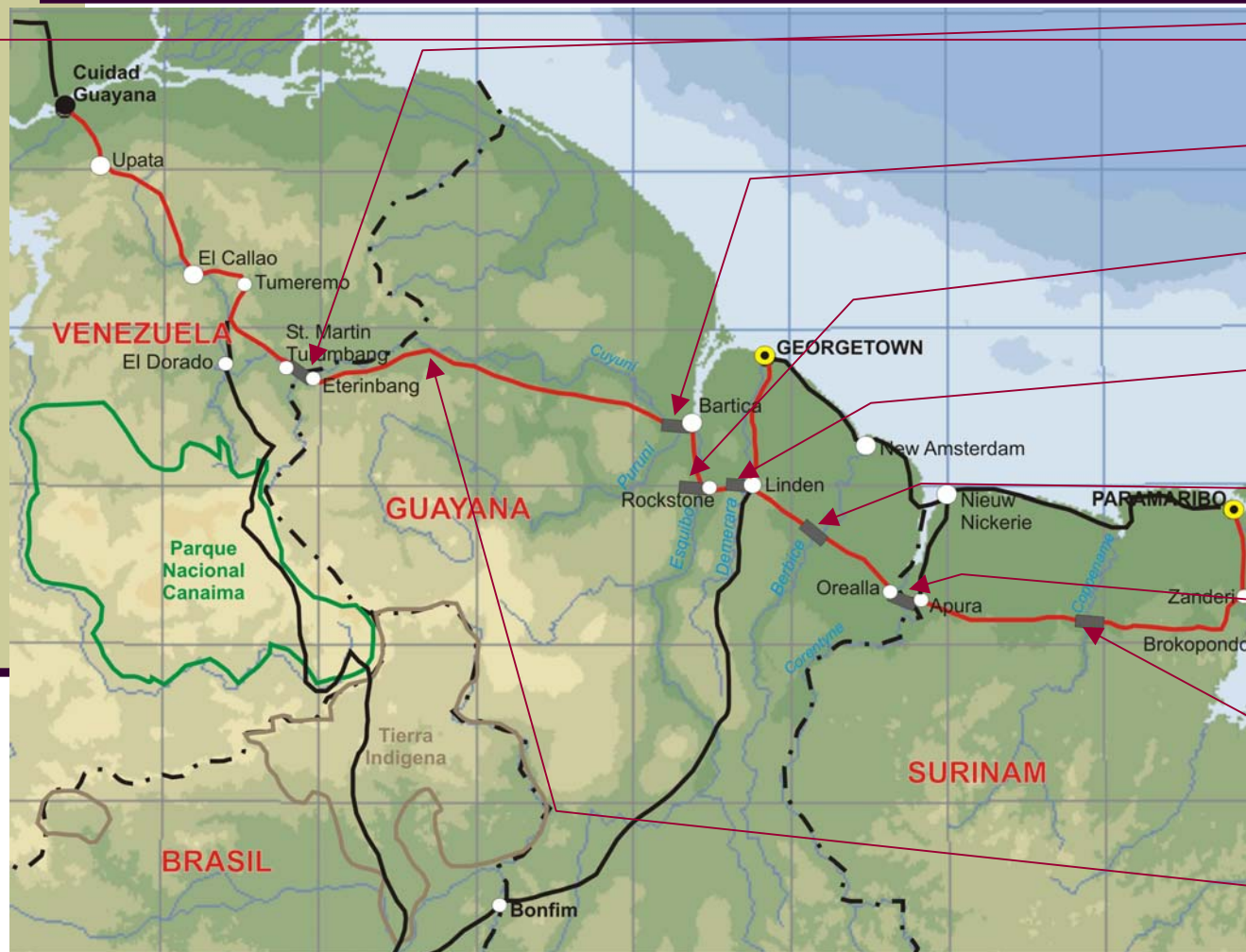
- To implement a development and integration link along the Caribbean coast, in the extreme north path of South America.
- Type of group: Emergent





# Guiana Shield Hub

## Group 3: Interconnection between Venezuela (Ciudad Guyana) – Guayana (Georgetown) – Surinam (Paramaribo)



Bridge or improved crossing over the Cuyuní River

Bridge or improved crossing over the Puruní River

Bridge or improved crossing over the Essequibo River

Bridge or improved crossing over the Demerara River

Bridge or improved crossing over the Berbice River

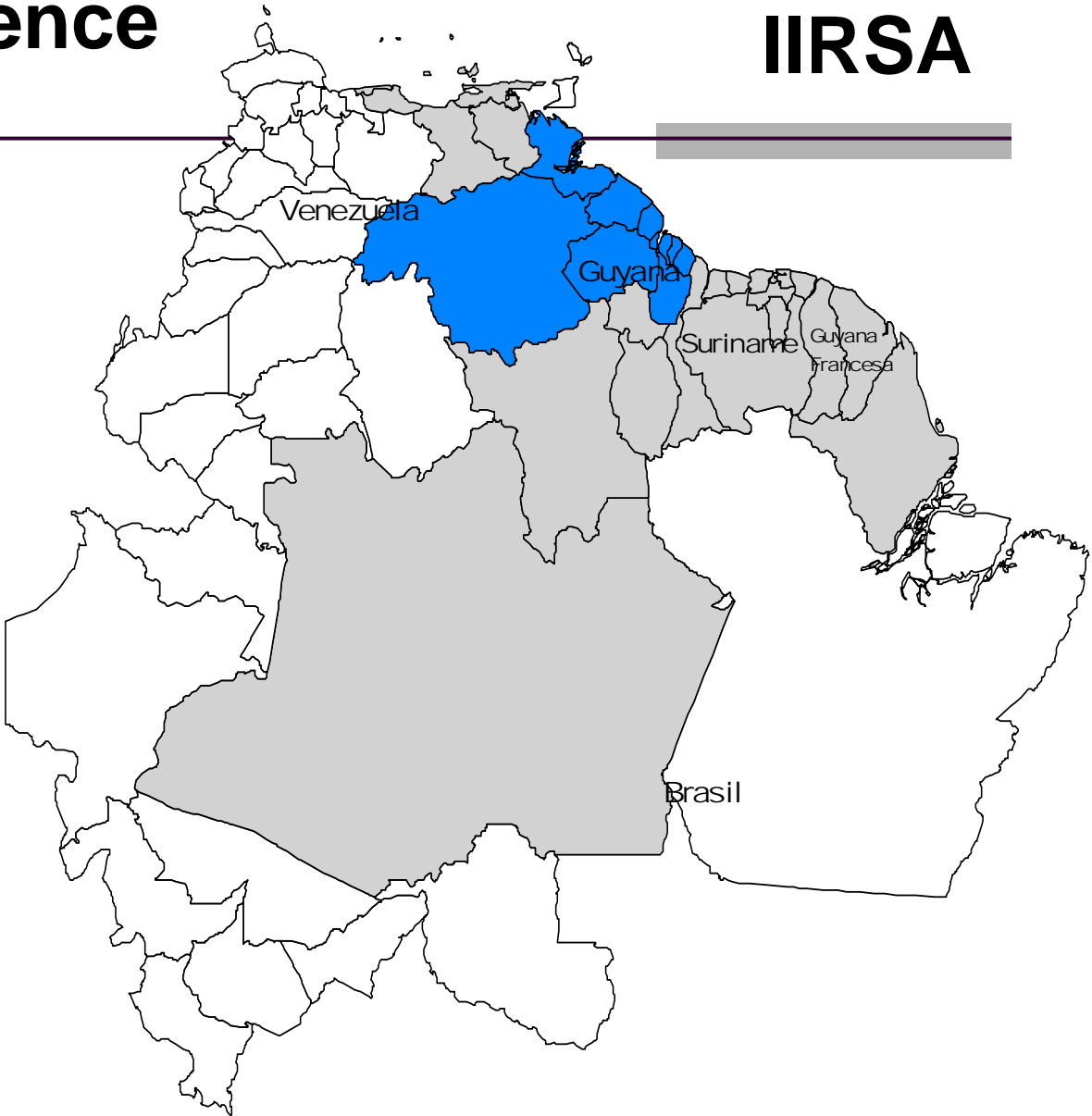
Bridge or improved crossing over the Corentyne River



Bridge or improved crossing over the Coppename River

**Proyecto Ancla: Road connection between Venezuela (Ciudad Guyana), Guayana (Georgetown) and Surinam (Paramaribo)**

# Area of influence

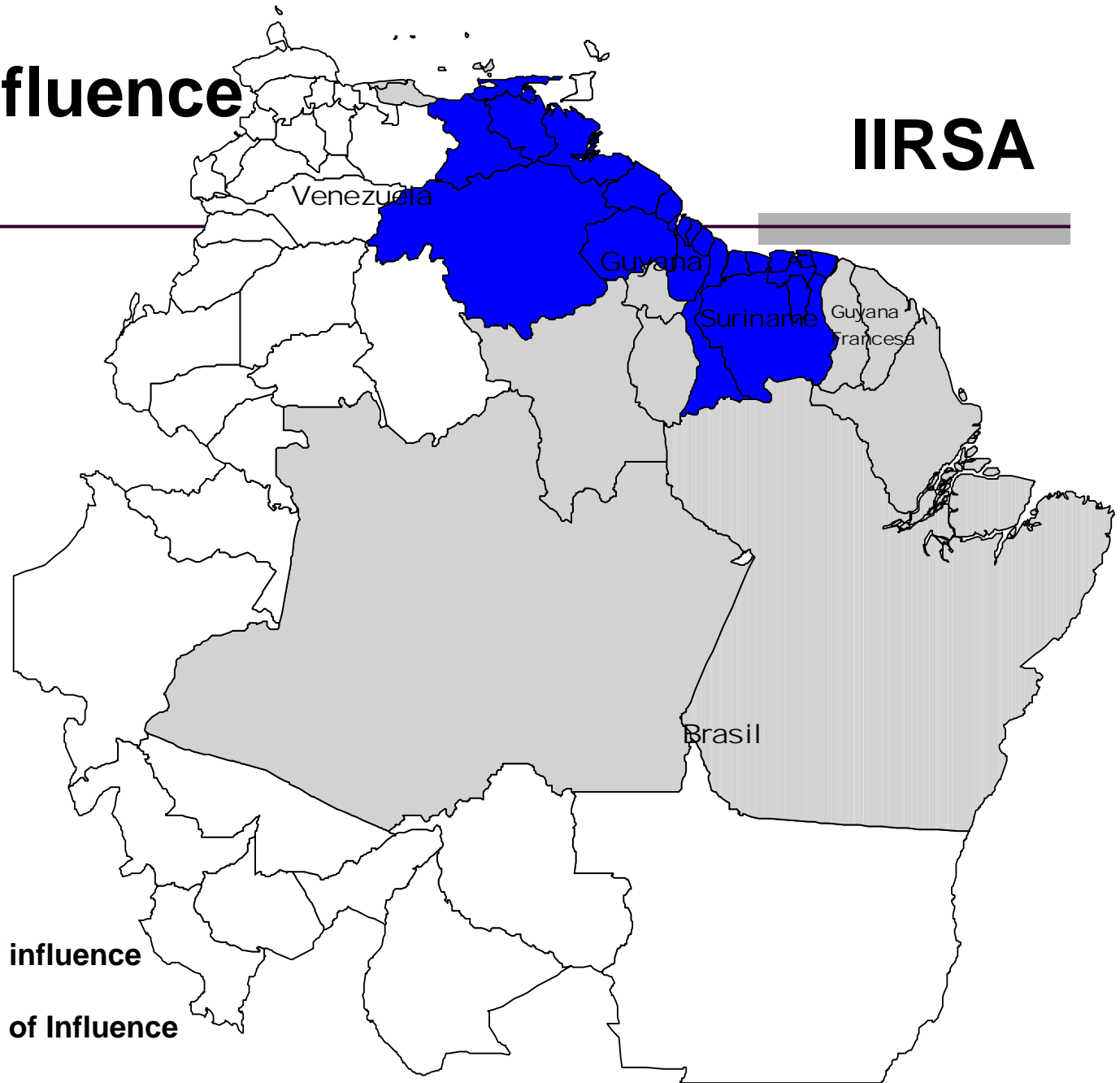
# IIRSA



-  Hub's area of influence
-  Group 3 Area of Influence

# Area of influence

# IIRSA

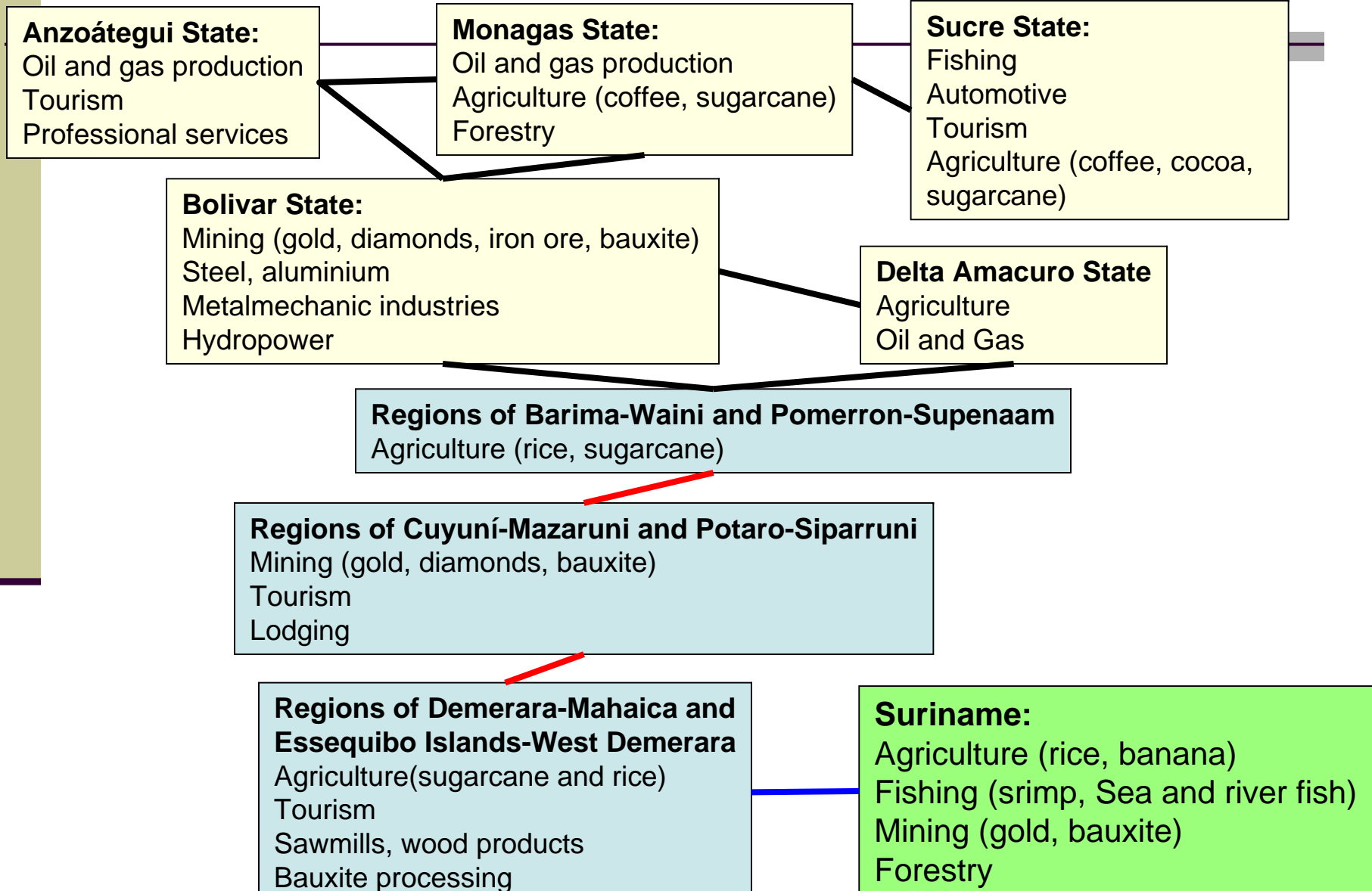


Hub's area of influence

Group 3 Area of Influence

# Dominant activities

## IIRSA



# Total investment

# IIRSA

	million US\$
<b>Road conection between Venezuela (Ciudad Guayana) - Guyana (Georgetown) - Suriname (Paramaribo)</b>	
Bridge or improved crossing of Cuyuní River	
Bridge or improved crossing of the Mazaruni River	
Bridge or improved crossing of the Essequibo River	
Bridge or improved crossing of the Demerara River	
Bridge or improved crossing of the Berbice River	
Bridge or improved crossing of the Corentine River	
Bridge or improved crossing of the Coppename River	

**GROUP 4: Interconnection  
Guyana – Suriname – French  
Guiana – Brazil**

# Strategic Function of the Group IIRSA

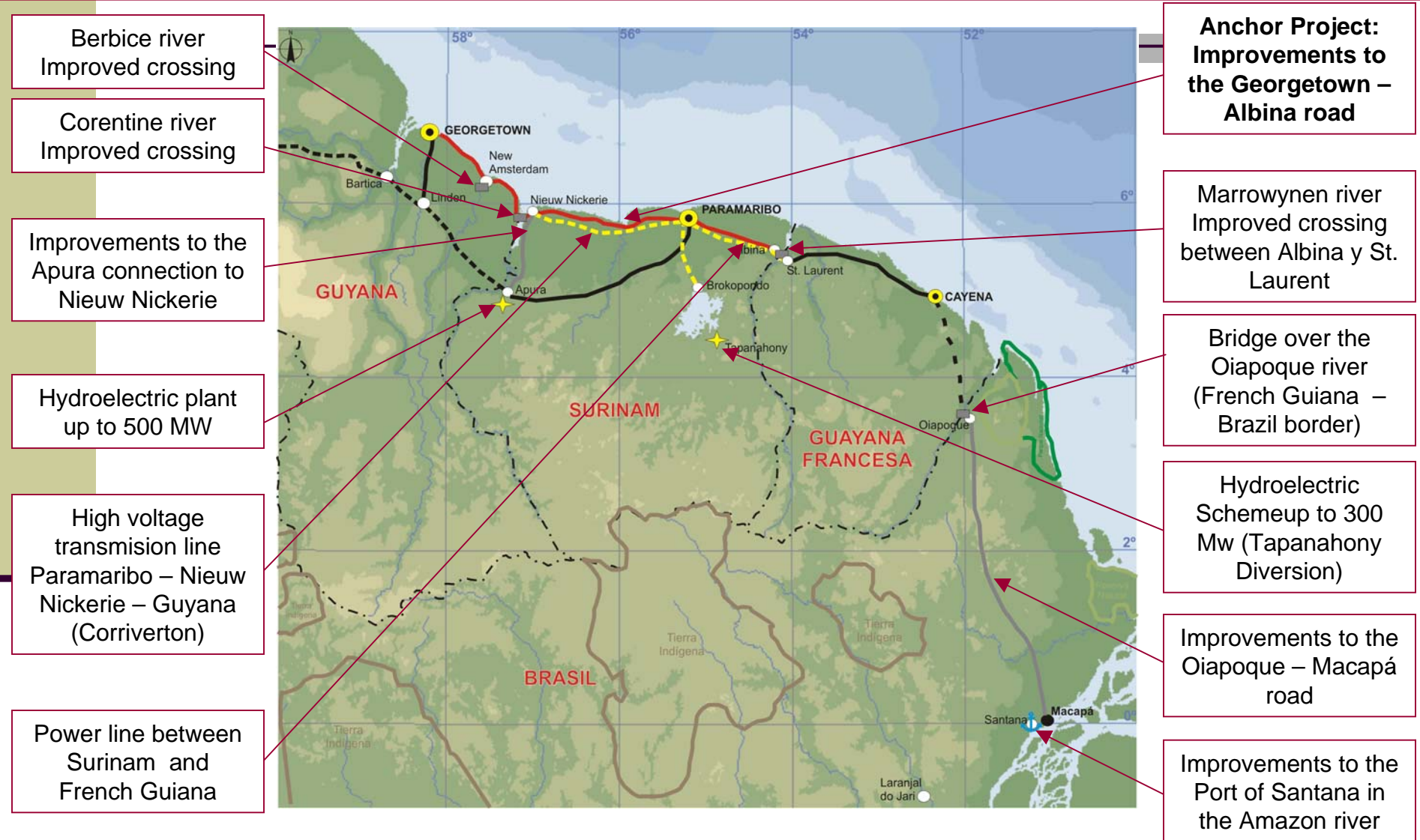
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- To consolidate an international physical connection to promote the sustainable development and integration of Guyana, Suriname, and the Brazilian states of Amapá and Pará through French Guiana (pending further consultations)
  
- Type of group: Emergent

# Guiana Shield Hub



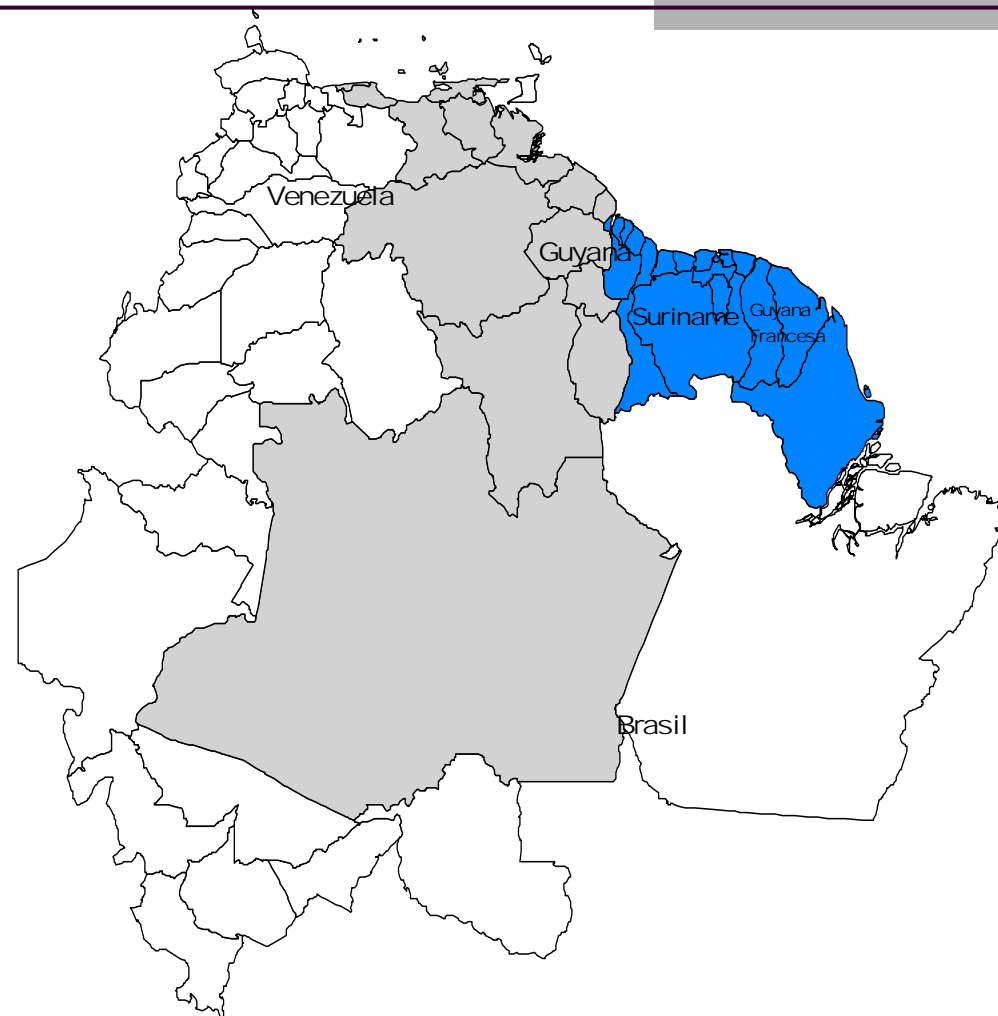
## Group 4: Interconnection Guyana – Suriname – French Guiana - Brazil





# Area of influence

# IIRSA

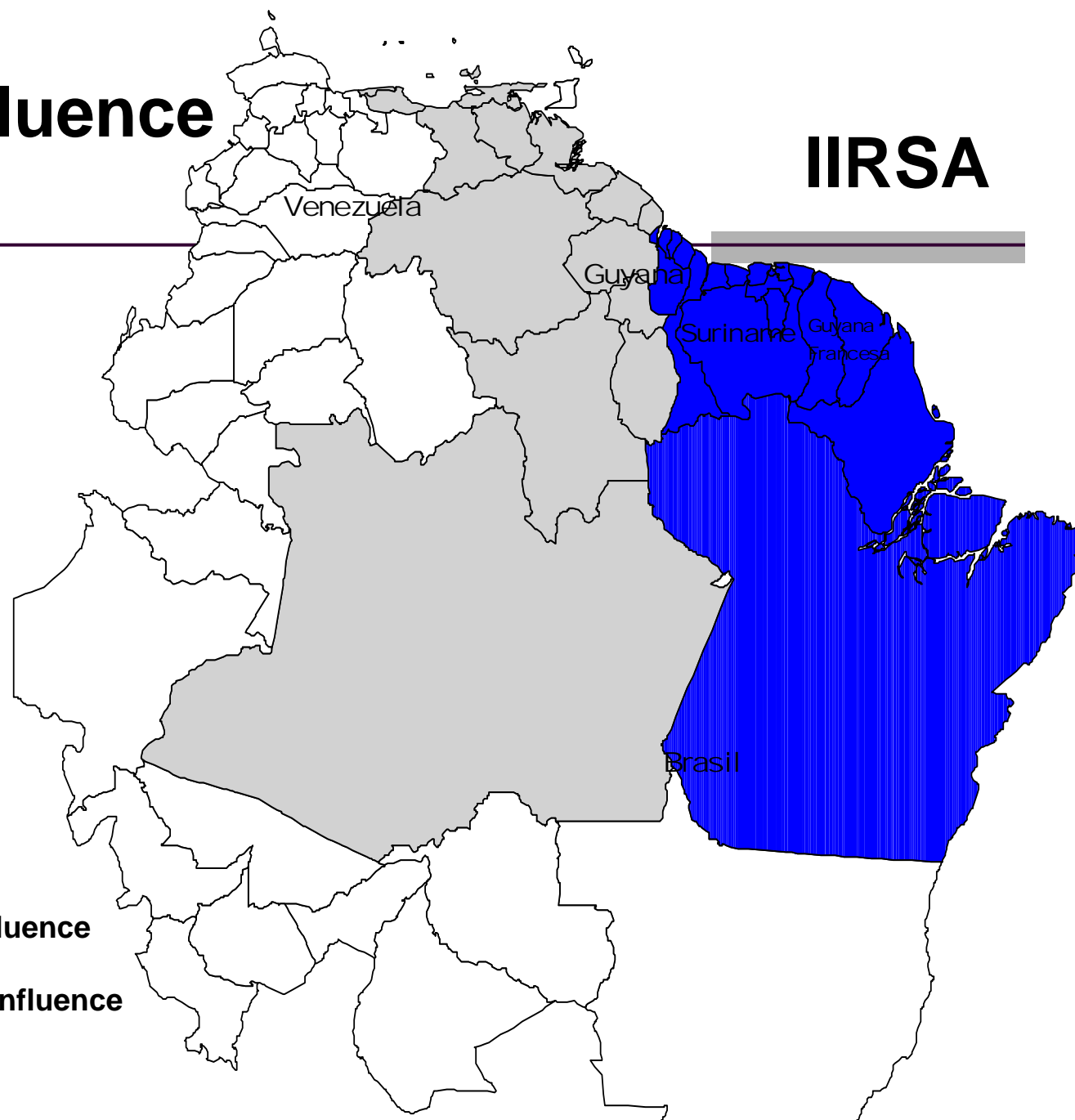


 Hub's area of influence

 Group 4 area of influence

# Area of influence

# IIRSA

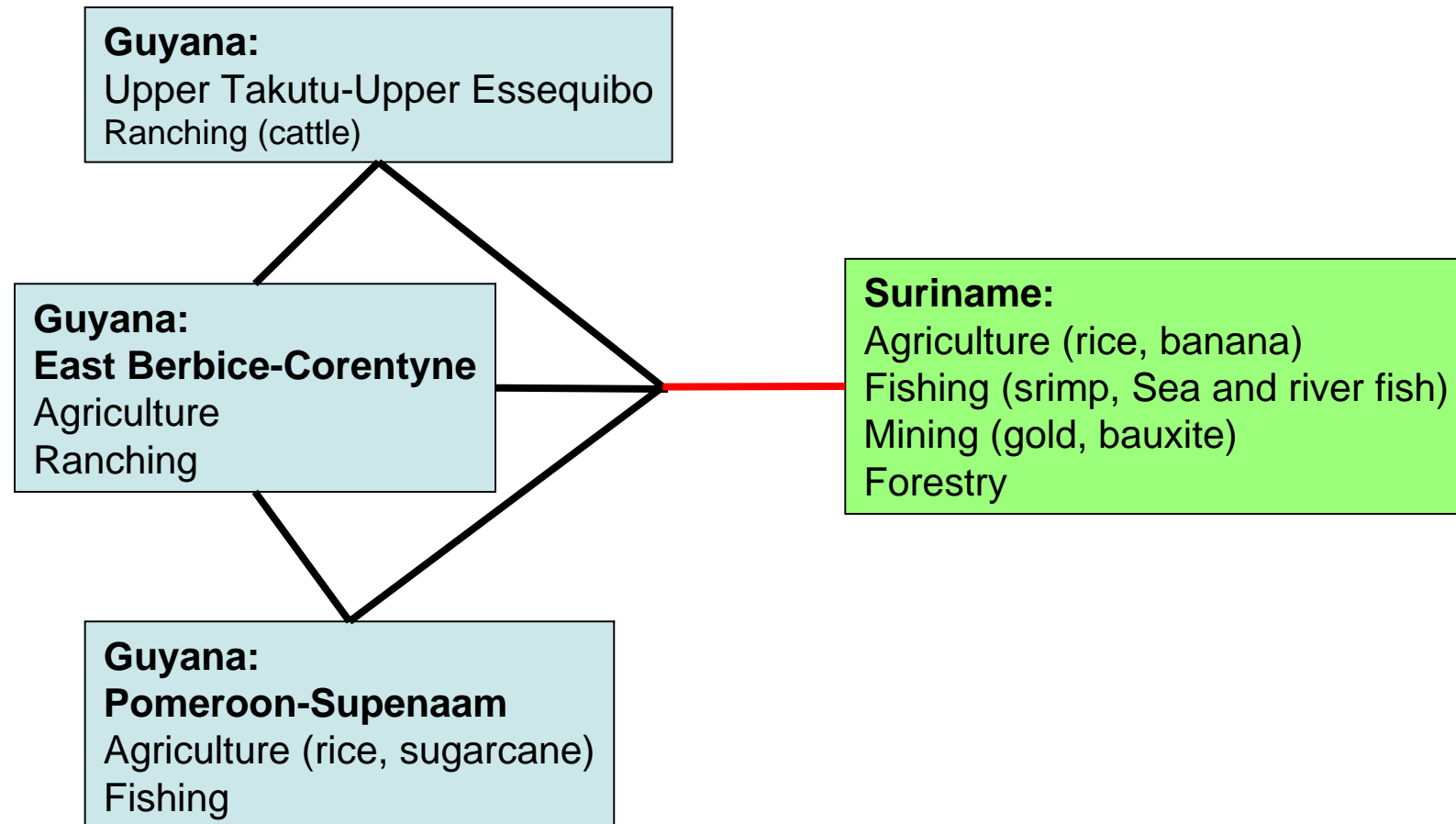


 Hub's area of influence

 Group 4 area of influence

# Dominant activities

# IIRSA



# Total investment

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	1000 US \$
<b>Nieuw Nickerie – Paramaribo – Albina Road improvements</b>	101.412,50
<b>Bridge Marowijne River international crossing</b>	48.265,00
500 MW Hydroelectric Power Plant	
Connection between Apura and New Nickerie	114.757,50
Electrical power interconnection Suriname - French Guyana	60.000,00
High voltage transmission line from Paramaribo - Nickerie (South Drain) - Guyana (Corriverton)	
300 MW Hydroelectric Power Scheme (Tapanahoni Diversion).	880.000,00
Total	<b>1.204.435,00</b>

# Themes for further exploration

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- Inclusion of French Guiana as an observing partner of IIRSA
- Definition of the most reasonable energy source to replace diesel power generation in Manaus
- Brazilian interest to interconnect the northern tip of the country to international telecommunication submarine cable infrastructure available along the coast of Venezuela and Guyana
- Productive projects in the Boa Vista area
- Alumina / Aluminum projects
- SIVAM / SIPAM
- Social and environmental aspects including national reserves consolidation