

TECHNICAL COOPERATION DOCUMENT

GUYANA

GUYANA – BRAZIL LAND TRANSPORT LINK AND DEEP WATER PORT (GY-T1098)

I. BASIC PROJECT DATA

▪ Country/Region:	Co-operative Republic of Guyana
▪ TC Name:	Guyana – Brazil Land Transport Link and Deep Water Port
▪ TC Number:	GY-T1098
▪ Team Leader/Members:	Christopher Persaud (Team Leader, TSP/CGY), Rafael Acevedo-Daunas, Carlos Mojica and Olga Mayoral (INE/TSP); Colin Forsythe (CSU/TSP); Maria Da Cunha (VPS/ESG); Diego Valenzuela (LEG/SGO); and Derise Williams (CCB/CGY)
▪ Type	Client Support
▪ Date of TC Abstract Authorization:	June 18, 2013
▪ Beneficiary:	Co-operative Republic of Guyana
▪ Executing Agency and contact name:	IDB through the Transport Division (INE/TSP)
▪ Donor Providing Funding:	Regional Infrastructure Integration Fund (FIRII)
▪ IDB Funding Requested:	US\$1,500,000
▪ Local counterpart funding, if any:	US\$150,000
▪ Disbursement Period (which includes execution period):	36 months (30 months)
▪ Required start date:	November, 2013
▪ Types of consultants (firm or individual consultants):	Firms and Individuals
▪ Prepared by Unit:	Transport Division (INE/TSP)
▪ Unit of Disbursement Responsibility:	Country Office Guyana (CCB/CGY)
▪ Included in Country Strategy (y/n):	Yes
▪ TC included in CPD (y/n):	Yes
▪ GCI-9 Sector Priority:	Competitive Regional and Global Integration

II. OBJECTIVE AND JUSTIFICATION

- 2.1 Guyana shares its borders with two northern Brazilian states; the States of Roraima and Para, and has traditional ties with the State of Amazonas, whose capital city, Manaus is the primary economic zone of northern Brazil. Currently, there is little trade between these states and Guyana, although there have been a number of trade and investment discussion between Governments of the two countries. Amongst the challenges faced by Brazil in fostering cross border integration is the access to sea ports for trade facilitation. However, the geo-strategic location of Guyana presents Brazil, whose emergence as an economic influence in the Western Hemisphere, with the potential to increase its trade with other countries. The states of Roraima and Amazonas are land locked with no direct access to ocean going shipping ports and uses the Atlantic ports in Brazil via the Amazon River and Venezuela for trade. This has led to virtually all the import and export movements of Manaus (Amazonia) and

Boa-Vista (Roraima) being containerized. The growth trend of Manaus' deep sea container traffic between 1998 and 2012 was about 7% a year.

- 2.2 Over the years, the Governments of both countries have been working towards their enhancement of trade, economic and physical integration. Both countries are signatory to the Treaty of Amazonian Co-operation of 1978, which seeks, among other things, to ensure harmonious (sustainable) development of signatory countries. This cooperation has so far resulted in a paved road in Roraima, Brazil, up to the Takatu River border and the bridging of the Takatu River in 2009, at the border with Lethem. In June 2001 Brazil signed a Partial Scope Agreement with Guyana which provided preferential access to a wide range of goods. In June 2013, Guyana and Brazil, under MERCOSUR (South American regional trading bloc), under the Union of South American Nations (UNASUR), met to establish a Framework Association Agreement, which addresses political, economic and trade, amongst other cooperation issues.
- 2.3 It is intended that the proposed land link will join the northern states of Brazil through the Guianas and facilitate shipping¹ access from port(s) in Guyana for imports and exports² to and from Roraima, and the Amazonas, with the northern Atlantic, the Caribbean, and North and Central America region. The development of this land transport link between the two countries and the development of a deep water port is also seen as critical in the fostering of this integration process for the Caribbean region as a whole, which has a large trade deficit with Brazil, although only importing 5%³ of its total imports from Brazil. Guyana, being a founder member of CARICOM (Caribbean Community), and being part of CARICOM's Single Market and Economy (CSME) is in a position to advance the integration between Brazil and CARICOM countries.
- 2.4 It is envisioned that Guyana's integration with Brazil will open up foreign markets to Guyana's exports, improve transportation costs, while at the same time, increasing competitiveness through increased economies of scale, and also, increasing the flexibility of labor supply which will result in less unemployment.
- 2.5 The objectives of this Technical Cooperation are to support Guyana's integration efforts with countries in South America and thus improve the competitiveness of the country. This will be achieved through the establishment of a land transport link between the Brazil-Guyana border at Lethem in the south, and a Deep Water Port along Guyana's coast, in the north. The proposed TC aims to: (i) produce the studies needed to substantiate the operation; and to (ii) conduct market, engineering, environmental, social and financial studies.

¹ Feasibility and Preliminary Design Report (2012), SNC Lavalin: Containers from Amazonas and Roraima to an Atlantic port takes five days and six days respectively and would take two and one day(s) should a port in Guyana be used.

² Instituto Brasileiro de Geografia e Estatística (2009): The Manaus Port in 2009 handled 1,580,802 tons of import/export cargo from Amazonas and 32,008 tons from Roraima.

³ Private Sector Trade Note Volume 12, CARICOM Office of Trade Negotiations: CARICOM 2009 exports to Brazil were US\$196,232,000 and imports were US\$3,179,680,000 which represents 14% of the total imports.

- 2.6 This operation is aligned with the Bank's Country Strategy (CS) for Guyana (2012-2016) in which Transport is a Strategic Dialogue Sector that aims to support the shift from rehabilitating the road system to expanding its capacity. Also, it is aligned with the Report (AB-2764) on the Ninth General Capital Increase of the IDB (GCI-9) which establishes competitive global and regional integration as one of the Bank's priorities for the 2012-2015 period. This priority was further elaborated in the Sector Strategy to Support Competitive Global and Regional Integration (GN-2565-4) and its Action Plan which provides the framework for the Bank to reach the 15% annual lending target for integration programs by the end of 2015. The objectives of this TC are closely aligned with the intervention areas of the Regional Infrastructure Integration Fund (the donor fund), as it supports the preparation of market, engineering, environmental, social and financial studies belonging to an IIRSA⁴ initiative in the Guianese Shield Hub.

III. DESCRIPTION OF ACTIVITIES / COMPONENTS AND BUDGET

- 3.1 This Technical Cooperation will primarily support the preparation of studies required for the establishment of a land transport link on the Brazil-Guyana border at Lethem, and the construction of a Deep Water Port along Guyana's coast. The studies to be undertaken include market, engineering, environmental, social and financial studies which are elaborated in the components below.
- 3.2 **Component 1: Market Study.** A market study is among the first studies to be conducted which will determine the size and value of the shipping markets in the Amazonas, Para and Roraima so as to ascertain the degree of trade that could be diverted to a port in Guyana, as well as, new commodities that could be traded between these Brazilian states and Guyana. The demand for land transportation between Guyana and northern Brazil will also be examined, given the scenario that a suitable port(s) is available on the coast of Guyana which could accommodate the shipping needs associated with the expected demand. The study would assess the current and future (growth) transportation and market demand in the Amazonia/Roraima states of Brazil and also current options and cost available, considering the ports in Brazil, Venezuela and Guyana. A key element of the Market Study would be consultation with the shipping stakeholders in Brazil, Venezuela and Guyana to ascertain the relationships they have with shipping lines and also to better understand the dynamics of the industry.
- 3.3 The Market Study would estimate the traffic for various scenarios (low, medium, high) which could be diverted from the current ports to Georgetown and the revenue that could be had on the land transport leg by way of tolls, while still remaining competitive. The study will also examine the local traffic demand and quantify the tolls which could be generated. The overall revenue estimation would include both Brazilian generated and local traffic. The outputs of this Market Study will be inputs for the Terms of References for the Engineering, Economic and Financial studies.
- 3.4 **Component 2: Engineering Studies.** In order to satisfy the various demand scenarios derived under the Market Study, various land transport modality and

⁴ IIRSA: Initiative for the Integration of the Regional Infrastructure of South America www.iirsa.org.

alignment options available for the different choices of port sites in Guyana would be examined. The analysis of alternatives will take into account established and new road alignments, port sites with natural water depths, traffic and cargo volumes, staged development, physical, environmental and social restrictions, and public consultations.

- 3.5 The analysis will include: (i) definition of suitable land transport modalities; (ii) identification of alternative port sites and corresponding land transport alignments; (iii) defining homogenous segments within each alternative alignment; (iv) conceptual works designs for each port site and land transport alignment alternative; (iv) assessment of the technical, social, environmental and economic viability of the different segments and port sites in collaboration with the Environmental/Social and Financial/Economic Teams; and (v) definition of the best alignment, the optimum land transport route and mode, and port site. Preliminary engineering designs and plans, technical specification, construction time table and costing would be produced for the land transport solutions and the port.
- 3.6 **Component 3: Social and Environmental Studies.** This component will fund the scoping, consultation process with relevant stakeholders, field activities and preparation of a Strategic Environmental and Social Study (SESA), Country Environmental Assessment (CEA) and Environmental and Social Impact Assessment (ESIA) for the engineering options. The SESA and CEA would be conducted to complement data sourced from past and ongoing studies⁵ which will provide a base for analyzing the likely significant effects of the land transport link and port operation on the country's environment, natural resources, indigenous people, general population and also for assessing its institutional capacity for handling these effects. The majority of the land transport link would be through rainforest and savannah lands which are part of a diverse ecosystem. In addition, these lands have varying uses and status, and comprise of both state and indigenous lands, conservation area, forestry and mining concessions and to a lesser extent, farm lands. In the coastal area where the majority of the population resides and the possible location of the port, the land use is largely agricultural, residential, commercial and industrial. The ESIA would have to assess all of the identified land transport modalities and alignment options, and port site combinations.
- 3.7 The consultation process will inform and engage the general public and stakeholders from the initial phase of the study on the intention to implement the Project and further, to understand the expectations and concerns of the population regarding the scope of the Project before the studies are complete. The ESIA will satisfy the requirements of the Guyana Environmental Protection Act, 1996 and the Regulations 2000, as well as the IDB Policies OP-102, OP-703, OP-704, OP-710 and OP-765. The preparatory activities for the ESIA and Environmental and Social Management Plan would include the identification and mitigation of direct and indirect impacts associated with the execution of the works and when the road comes into use, taking

⁵ Draft ESIA for Feasibility Study of Georgetown-Lethem Road, SNC Lavalin (2011); Indigenous People Plan for Feasibility Study of Georgetown-Lethem Road, SNC Lavalin (2012); Ongoing studies for GY-T1081: Expansion of Preinvestment Georgetown-Lethem Road Study.

into account compliance with local regulations and the provisions of the Bank's Safeguard Policies.

- 3.8 **Component 4: Economic and Financing Studies.** This component will fund the studies to ascertain the economic and financial feasibility of the Project as well as provide financing options. The structuring of the financing for the Project is of great importance in order to minimize public sector financial burden while leveraging private sector contributions and proficiency.
- 3.9 The studies will entail modeling/forecasting to determine the level of economic output and rate of return from the “connectivity” which the establishments of these links are expected to create amongst Brazil, Guyana, South America and the Caribbean regions. The financing of the Project would be analyzed in detail to examine the incremental infrastructure development versus one-off development for the various combinations of land transport and port identified in Component 2. The structuring of the operation to attract the interest of investors is key for the next steps. This would involve the examination of various commonly used Public Private Partnerships methods for financing such as, concessions and toll arrangements, and Build Own Operate Transfer, and the recommendation of the most appropriate method.

Table 1. Indicative Results Matrix

Activities	Expected Outputs	Expected Outcomes
Component 1: Market Study		
Market Study	Comprehensive analysis and quantification of the demand for a land transportation link between northern Brazil and a port in Guyana.	A quantification of the economic and financial benefits allow for decision to move to the engineering and economic/financial analysis stages.
Component 2: Engineering Studies		
Alternatives analysis	Definition of alternative land transport modalities, alignment and identification of alternative port sites and corresponding land transport alignments.	A suitable combination of land transport modality, alignment and port site identified.
Preliminary engineering	Preliminary engineering designs and plans, technical specification, construction time table and costing for the land transport and port solutions.	Engineering designs and costs to support the preparation of the environmental and economic/financial analysis stages.
Component 3: Social and Environmental Studies		
Stakeholder Consultations	Stakeholder input and concerns harnessed through public consultations on the Project and recorded. A matrix compiles of stakeholder input/concerns and explanations provided where it has not been incorporated into Project design.	Stakeholder input and concerns are incorporated into the Project design.
Strategic Social and Environmental Assessment	Identification of the significant environmental effects which are likely to result from the implementation of the Project alternatives.	Framework established to inform the downstream social and environmental assessments.
ESIA and ESMP	An ESIA is prepared for all Projects alternatives and an ESMP for the recommended Project alternative.	Identified mitigation measures are incorporated into the Project ESMP and Project budget.
Component 4: Economic and Financing Studies		
Economic and Financial Modeling	Economic and financial modeling for all identified alternatives including phased implementation of the works as demand increases.	An economic and financial feasible alternative identified.
Financing Mechanism	Financing alternatives identified for the economic and financial feasible alternative including phased implementation of the works.	Viable financing mechanism identified.

- 3.10 **Budget:** The total estimated cost of the technical cooperation is US\$1,650,000 of which up to the amount of US\$1,500,000 will be financed by the Regional Infrastructure Integration Fund on a non-reimbursable basis; and US\$150,000 by the Beneficiary by means of an in-kind contribution. A breakdown of the indicative budget is shown below.

Table 2. Indicative Budget

Activity/Component	Description	IDB/Trust Fund Financing (US\$)	Counterpart Financing (US\$)	Total Financing (US\$)
Component 1: Market Study	Market demand assessment	200,000	40,000	240,000
Component 2: Engineering Studies	Site selection for port, modal and alignment selection for land transport, preliminary engineering designs and costing	600,000	60,000	660,000
Component 3: Social and Environmental Studies	Scoping, stakeholder consultations, fieldwork, and environmental and social impact assessment	450,000	30,000	480,000
Component 4: Economic and Financing Studies	Economic and financial modeling and feasibility, and financing options	200,000	20,000	220,000
Technical Supervision and Evaluation	Experts for technical supervision and evaluation of the TC	50,000	0	50,000
TOTAL		1,500,000	150,000	1,650,000

IV. EXECUTIVE AGENCY AND EXECUTION STRUCTURE

- 4.1 The Beneficiary will be the Co-operative Republic of Guyana through its Ministry of Public Works (MPW). The Government has requested that the Bank executes the TC on its behalf citing its current limited internal capacity and also the work load of the MPW which currently executes four (4) IDB funded loans and four (4) TCs, along with other donor funded and GOG Projects. In keeping with this request (see Annex I), the Bank through the Division; INE/TSP will execute the TC on behalf of the country. INE/TSP will supervise and will be administratively responsible for the consultants' contracts. The MPW will be actively involved in the technical review and acceptance of all Terms of References for the studies and the products of the consultancies. In addition, the TC caters for the hiring of individual consultants to provide technical advice and coordination during the implementation of the Project.
- 4.2 The TC will be executed in 30 months and disbursed in 36 months. The Bank will hire consulting services (individuals and firms) in accordance with current policies and procedures for institutional procurement. At the end of the execution, the Bank will hire an independent consultant to conduct the final evaluation of this TC operation and to assess the quality and scope of the outputs and outcomes developed in relation to the objectives initially stated as well as lessons learned, sustainability, and to identify the challenges ahead.

V. MAJOR ISSUES

- 5.1 The project being undertaken, once implemented would have an impact on both the TC Beneficiary countries; Guyana and Brazil. As such, Brazil's concurrence on the outputs and recommendations would be important for the implementation of the solutions emanating from this TC. To mitigate any risks of disagreements all outputs of the TC shall be shared with the Brazilian Authorities through the existing Guyana-Brazil Joint Commission on the Development of Infrastructure Projects which was formed to address infrastructure projects including the ones being studied by this TC. Any comments and suggestions from Brazil would be incorporated towards the finalization of the studies. It is expected that Brazil will be very interested in the results of the TC as the road connection between Brazil and Guyana has been much discussed by both countries and is one of the IIRSA anchor projects for the Guianese Shield Hub agreed to by both Brazil and Guyana.
- 5.2 In order to ensure the success of the TC, the demand for land and sea transport modes in Guyana for goods emanating from the Roraima, Para and the Amazonas' regions in Brazil, must be determined with an accurate degree of certainty. To mitigate this risk of poor demand estimation, the studies would have to assess both the current shipping needs and the willingness to change from the current routes which will be facilitated through rigorous consultation and engagement with the relevant stakeholders in Brazil. To facilitate the consultations and ensure credibility, the sanctioning by both the Guyana and Brazil governments would be required. This will also be discussed at the Guyana-Brazil Joint Commission.

VI. EXCEPTIONS TO BANK POLICY

- 6.1 No exceptions to Bank policy were identified.

VII. ENVIRONMENTAL AND SOCIAL STRATEGY

- 7.1 This TC is classified as A to reflect the environmental and social risk level of the Project it supports. The team has included all the necessary environmental and social aspects in the Terms of References and will monitor and evaluate the environmental and social quality of reports received, prior to acceptance and payment. (Download [here](#) the Safeguard Policy Filter Report (SPF) and the Safeguard Screening Form Report (SSF)).

REQUIRED ANNEXES:

Annex I. Client Request ([IDBDOCS-#38140114](#))

Annex II. Terms of References:

- A- Market Study ([IDBDOCS-#38109597](#))
- B- Engineering Studies ([IDBDOCS-#38109627](#))
- C- Environmental and Social Studies ([IDBDOCS-#38109611](#))
- D- Economic and Financial Studies ([IDBDOCS-#38109647](#))

Annex III. Procurement Plan ([IDBDOCS-#38136937](#))

IN REPLYING QUOTE DATE
HEREOF AND No.....



MINISTRY OF FINANCE
*Main & Urquhart Streets,
Georgetown,
Guyana.*

22 August 2012

Ms. Sophie Makonnen
Representative
Inter-American Development Bank
47 High Street
Kingston
Georgetown

Dear Ms. Makonnen,

**Re: Land Transport Link with Brazil:
Deep Water Harbor and Container Port- Berbice River**

During the last few months there have been several exchanges between the Government of Guyana (GOG) and IDB's Management on the subject of developing a Land Transport link with Northern Brazil and a Deep Water Harbor and Container Port located on Guyana's coast. While there have been pre-investment studies supported by the Bank and the European Union to examine a road link with Brazil, there has been very little work by way of studies for a deep water harbor and container port. Some years ago an Indian firm supported by the Indian Government conducted a preliminary examination of a deep water harbor and container port at the mouth of the Berbice River. Beyond this, however, no further examination was done regarding the Economic, Social and Financial Feasibility of this project.

Within the last several months also, a general view had emerged that it may well be more feasible to examine these two projects "together" rather than as standalone projects. It is the general view point that one project will enhance the feasibility of the other project and therefore Guyana may better consider a joint feasibility of the two projects.

In this regard GOG has taken the decision to approach these important infrastructure developments as one project since they are co-dependent on each other for benefits. In addition, the financial magnitude of developing the land transport link and deep water harbor is clearly outside the realm of the public sector and would most likely be a public/private partnership venture.

We are therefore requesting the assistance of the Bank to identify Technical Cooperation resources for the necessary market, engineering, environmental, social and financial studies required to prepare the Road Link and Deep Water Port project for eventual financing through a public/private partnership.

GOG looks forward to continued collaboration with the IDB on this important national priority.

Sincerely,

A stylized blue ink signature of Tarachand Balgobin.

.....
Tarachand Balgobin
Head, Project Cycle Management Division

IN REPLYING QUOTE DATE
HEREOF AND No.....



MINISTRY OF FINANCE
49 Main & Urquhart Streets,
Georgetown,
Guyana.

June 17, 2013

Ms. Sophie Makonnen

Representative

Inter-American Development Bank

47 High Street

Kingston

Georgetown

Dear Ms. Makonnen,

Re: Land Transport Link with Brazil and Deep Water Port

Further to our request to the Bank for Technical Cooperation (TC) resources to prepare the required studies for the Land Transport Link with Brazil and Deep Water Port. The Government of Guyana (GOG) has reviewed its internal capacity to execute such a TC along with the present projects and studies that are currently under execution. We believe that the timeliness and quality of the execution of a new TC could be affected by the existing workload of our technical staff.

In light of the above, we would like the Bank to be the Executor of the TC and to procure, supervise and be administratively responsible for all Consultants' contracted with resources from the TC. GOG would share the responsibility with the Bank to review the Terms of References and outputs of the Consultancies, and offer it comments and/or no objections.

GOG looks forward to continued collaboration with the IDB on this important national priority.

Yours sincerely,



.....
Tarachand Balgobin
Head, Project Cycle Management Division

JUL 18 2013 4:34

**TERMS OF REFERENCE
MARKET STUDY (GY-T1098)**

I. BACKGROUND

- 1.1 Guyana shares its borders with two northern Brazilian states, the States of Roraima and Para; and has traditional ties with the States of Amazonas whose capital city, Manaus is the primary economic zone of northern Brazil. Notwithstanding this, currently there is little trade between these states and Guyana. Further these Brazilian states are land lock with no direct access to ocean going shipping ports, and uses Atlantic ports in Brazil via the Amazon River and Venezuela. Virtually all the import and export movements of Manaus (Amazonia) and Boa-Vista (Roraima) are containerized.
- 1.2 Over the years, the Governments of both countries have been working towards their enhancement of trade, economic and physical integration. This cooperation has so far resulted in a paved road in Roraima, Brazil up to the Takatu River border and the bridging of the Takatu River in 2009, at the border with Lethem.
- 1.3 The proposed land link will join the northern states of Brazil through the Guianas and facilitate shipping¹ access from port(s) in Guyana for imports and exports² to and from Roraima, and Amazonas and the northern Atlantic, the Caribbean, North and Central America. The development of this land transport link between the two countries and the port is also seen as critical in the fostering of this integration process for the Caribbean region as a whole which has a large trade deficit with Brazil although only importing 5%³ of its total imports from Brazil. Guyana, being a founder member of CARICOM (Caribbean common market), is in a position to further the relationship between Brazil and CARICOM.
- 1.4 It is envisioned that Guyana's integration with Brazil has the possibilities to open up foreign markets to Guyana's exports, lowering transportation costs while at the same time, increasing competitiveness through increased economies of scale, and also, increasing the flexibility of labor supply which will result in less unemployment.
- 1.5 Guyana is a nation of approximately 766,000 residing within a territory of 215,000 square kilometers. The country possess a rich natural resource base, with more than 80 percent of each territory covered in largely intact lowland and sub-montane tropical forest, and dozens of moderate to large unaltered rivers extending from the southern interior to the north. The rich biodiversity of this area includes rare and endemic plant species and endangered species of wildlife.
- 1.6 The current Guyanese road to the Brazilian border in the south commonly known as the Linden – Lethem road bisects the Iwokrama International Rainforest Program

¹ Feasibility and Preliminary Design Report (2012), SNC Lavalin: Containers from Amazonas and Roraima to an Atlantic port takes 5 days and 6 days respectively and would take 2 and 1 day(s) should a port in Guyana be used.

² Instituto Brasileiro de Geografia e Estatística (2009): The Manaus Port in 2009 handled 1,580,802 tons of import/export cargo from Amazonas and 32,008 tons from Roraima.

³ Private Sector Trade Note (2009), CARICOM Office of Trade Negotiations: CARICOM 2009 exports to Brazil were US\$196,232,000 and imports were US\$3,179,680 which represents 5% of the total exports.

(IIRFP) reserve, a Commonwealth-supported experimental forest management Project and one of only two legally protected areas in Guyana. Apart from being the site of a number of protected species under the Convention of International Trade in Endangered Species (CITES) of Wild Fauna and Flora, such as the Arapaima fish (*Arapaima gigas*) and the Striped Owl (*Asio clamator*), the Reserve and other areas contain a number of archaeological sites such as petroglyphs that require further exploration. The improvement of the Linden – Lethem road has been the subject of intermittent discussion and study over many years. The following studies are the most relevant:

- 1989 TecnEcon-Gibb Feasibility Study funded by the European Union
- 1995 Environmental and Social Impact Report funded by the World Bank
- 2000 ADK-Gibb Feasibility Study funded by the European Union
- 2006 GOPA Transport Sector Strategy Study funded by the European Union
- 2008 Mott MacDonald - CEMCO Pre-Feasibility Study funded by the Inter-American Development Bank
- 2012 SNC Lavalin: Feasibility Study funded by the Inter-American Development Bank (incomplete)

- 1.7 The studies for the Guyana – Brazil Land Transport Link and Deep Water Port Project will examine various land transport modality and alignment options available for the different choices of port sites in the estuaries of the three Essequibo, Demerara or Berbice rivers or Guyana's Atlantic coast. The map in Figure 1 show the established land routes and port sites identified in previous studies. Once this Project is implemented there will be a significant increase in the accessibility of the countries hinterland for development and economic activity.

II. CURRENT SITUATION

- 2.1 The State of Roraima is situated on the frontier of Guyana and Venezuela and has a population of 456,000. The principal disadvantage of its location is that it is in the interior of the country and far from the markets which are principally in the south of Brazil (São Paul, Rio de Janeiro). Consequently, the State is faced with high transportation costs.
- 2.2 Roraima is however, close to the markets of its neighbours – Venezuela and Guyana. Most of the principal ports for transporting produce from Roraima (e.g. Puerto Cabello, Maracaibo, Ciudad Bolivar, Itacoatiara) are between 836 and 1614 km from Roraima's Capital, Boa Vista. Georgetown, however, is approximately 550 km from the Boa Vista and is therefore of primary interest for logistic reasons as there would be very significant distance (and possibly cost) savings via the Guyana route.

- 2.3 According to the 2012 feasibility study⁴ of the Linden Lethem road, a paved asphalt road would be the road improvement option that could see potential flows of imports and exports from the State of Roraima and Manaus being diverted to Port Georgetown.
- 2.4 The road upgrade would improve transportation between Guyana and Brazil with a view to promoting integration, trade and cultural exchange, boost economic development particularly in Roraima and Guyana. These would be facilitated through the export/import of goods to North America, Central America and the Caribbean through port services available in Guyana and create a north-south transportation corridor to help integrate northwestern Brazil with the capital of Guyana.
- 2.5 The improved road link would facilitate exports/imports to and from Roraima and Manaus through the Port in Georgetown or through a proposed Deep Water Port in New Amsterdam Berbice which is being contemplated by the Government of Guyana.
- 2.6 Virtually all the export and import movements of Manaus and Boa-Vista are containerized. The trend growth of Manaus' deep sea container traffic between 1998 and 2012 was just under 7% a year. It is estimated that this growth will continue.
- 2.7 While the distance savings by road would be greater for Boa Vista than for Manaus to an Atlantic port, both could enjoy time and cost saving by utilizing the Guyana route for exports/imports to and from these cities.
- 2.8 According to the recent feasibility study⁵ for the Linden Lethem road, the time taken for a 40ft container to travel along the Amazon River from Manaus to a port in Brazil for further transshipment to Caribbean or North America is 3 days more than it would take using the Linden Lethem corridor. The river route is also estimated to cost 50% more than the Guyana land route.
- 2.9 Roraima's main international exports are processed timber products, animal hides and derivatives, and soya which have grown rapidly in importance. Technology has been developed to maximize the production of rice, soya, corn, sunflower and fruits.
- 2.10 The zoning of the Roraima is currently in its final stages and it is anticipated that three (3) million hectares of land would be available for agricultural production. This could present great opportunities for creating a production chain in the Caribbean, but the infrastructure has to be first developed.

III. CONSULTANCY OBJECTIVES

General Objective

- 3.1 The general objective of the consultancy is to establish the size and value of the shipping market in Amazonia and Roraima which could be diverted to a port in Guyana, as well as, new commodities that could be traded between these Brazilian

⁴ SNC Lavalin and Vikab (Guyana) Ltd (2012) Consultancy Services For Georgetown-Lethem Road Project Feasibility Study, Final Feasibility And Preliminary Design Report, Volume I, Georgetown.

⁵ SNC Lavalin and Vikab (Guyana) Ltd (2012) Consultancy Services For Georgetown-Lethem Road Project Feasibility Study, Final Feasibility And Preliminary Design Report, Volume I, Georgetown.

states and Guyana. This information would be used to analyses the economic and financial viability of developing the logistics and infrastructure for a shipping route through Guyana.

Specific Objectives

- 3.2 The consultancy will forecast the volume of generated and diverted local and Brazilian commercial and commuter traffic that would utilize a land transport link to Guyana's coast for the purpose of using a port in Guyana. The forecast would be compared with the current capacity of the Georgetown Port and pronounce on its ability to absorb the new shipping demand and provide recommendation on possible expansion or the need for a new port.
- 3.3 A considerable amount of local traffic is also expected to be generated for the land transport mode associated mainly with mining and forestry activities. This would be quantified and added to the Brazilian traffic to give the demand on the land transport link.
- 3.4 Emphasis would be on volume of Brazilian containerized traffic of both 20 ft and 40ft containers, bulk cargo and any other form of commercial traffic that will be diverted to the a Port in Guyana for transshipment to major sea ports in North America, the Caribbean and Europe.
- 3.5 The consultant is expected to forecast the volume of daily truck traffic of varying axle loads as well as conduct analyses of all vehicle classes expected to utilize the road originating from the state of Roraima, the city of Manaus and from areas within Guyana.
- 3.6 The consultant will determine the current and future volume of import cargo traffic expected to utilize the Georgetown to Lethem corridor destined for the state of Roraima and Manaus.
- 3.7 The consultant will determine the current and forecast the likely cargo types destined/originating to/from the State of Roraima and the city of Manaus to/from the Georgetown and the various growth scenarios for each.

IV. SCOPE AND ACTIVITIES

Activity 1: Identification and Assessment of trade corridors used by Amazonia and Roraima

- 4.1 Investigate the origin and destination of cargo to and from Manaus and Roraima (Boa Vista in particular) to determine the current international volumes traded with North America, the Caribbean and Europe. Compute the magnitude of the import/export imbalance for Manaus, Roraima and Guyana. Collect commodity flow data (excluding trade in crude oil and petroleum products and ores) originating from and destined for Amazonia and Roraima including internal Brazilian trade. The data set should contain details on commodity types and tonnage and, container traffic in Twenty Foot Equivalent Units (TEUs). Yearly cargo flow data should be collected for the period 2000 to the latest available year and analyzed to reveal the main trends. The data should be geocoded by commodity type and mapped for the earliest and

most recent years for which most complete data are available for the major commodities only. Time sensitive cargo should also be identified.

- 4.2 Identify the characteristics of the land and maritime shipping networks involved in the cargo flows of the same major commodities. For land transport modes it should describe the modes along with combination of modes serving the different trade routes. The number and size of vehicles involved in the land aspect of shipping should be quantified. For maritime transport, the data should include numbers of vessels by ports relevant for each trade route in terms of international and internal trade, vessel size (net registered tonnage), vessel type (deep sea, short sea), and countries of registry. This data should span the period 2000 to the latest available year. Vessel movement patterns in the transshipment ports should be identified. A sample of actual vessel movements should be collected from geo-coded data sources such as Lloyds List Intelligence for a period of one month. These monthly movements should be recorded in an O/D data matrix, and subsequently mapped by separate vessel size classes.
- 4.3 From 1.1 and 1.2 identify the main trade corridors. The selection criteria should be specified but in general, it could be based on, for example, the size and intensity of trade flows and/or number of commodities relevant for both internal and international trade corridors. For each corridor selected, the main commodities should be identified. The corridors will be mapped and assessed in terms of their relative volumes of trade, the diversity of commodity mix, the volatility of trade flows over the period 2000 to the latest available year, and their degree of spatial concentration. The methodology used to assess the corridors should be specified and approved.
- 4.4 Develop a set of commodity flow models to describe the present patterns of trade in the study region, using standard multivariate techniques. These models should be based upon a) the general trade patterns identified in 1.1, b) sectorial flows for the major commodities identified in 1.1, and c) the trade corridors identified in 1.3.

Activity 2: Forecasting trade volumes

- 4.5 Review historic cargo growth and Project traffic increase up to 20 years. As a separate scenario; investigate future development plans that would cause increases in cargo growth. For the main commodities and corridors identified in Component 1, develop forecasts of trade flows and patterns for the present period to 20 years into the future. These general forecasts should be based on standard forecasting methodologies employing predicted rates of growth suggested by agencies such as OECD, World Bank, MERCOSUR, etc. Forecasting methodology should be specified.

Activity 3: Freight Logistics and Trade Facilitation

- 4.6 Analyze the freight logistics and trade facilitation which currently exists in Amazonia and Roraima and Guyana. Undertake a SWOT analysis for the proposed transport route through Guyana for goods emanating and destined for Amazonia and Roraima.
- 4.7 In terms of freight logistics, the assessment will mainly be a comparison of what currently exists in Amazonia and Roraima trade logistics and Guyana could offer

including (1) an examination of relevant transport infrastructure and services exists in Amazonia and Roraima and Guyana, and (2) an analysis of the supply chains for the main export commodities in the identified maritime trade corridors. This freight logistics analysis will consider but not be limited to the following: dependability of delivery, competitive pricing, order filling rates, and responsiveness of local vendors; location of warehouses and adequacy of facilities and services; barriers in transportation including port accessibility and capacity, condition of infrastructure, availability of mode/carrier selection, loading/unloading times; order/document processing and availability of cargo tracing services; processes for handling goods in transit and refrigerated cargoes. Ascertain the current shipping costs per leg (export and import) for the below scenarios and others deemed appropriate by the Consultant and Project the cost to the same destinations using port Georgetown and a reference port in Guyana.

- Roraima – Venezuela - North America, the Caribbean and Europe
- Manaus – Venezuela - North America, the Caribbean and Europe
- Roraima – Manaus - Belem - North America, the Caribbean and Europe
- Manaus - Belem - North America, the Caribbean and Europe

4.8 In terms of trade facilitation, the assessment will include an examination of the regulatory framework for transport and trade sectors (including agriculture), and assess the extent to which various measures reduce the efficiency of cross-border trade. These include but are not limited to: the quality and efficiency of border operations (including customs, sps agencies, agriculture, quarantine etc.); the level of automation, use of ICT and interconnectivity between national agencies and with other agencies in the region; security and risk assessment procedures and programs (e.g. Authorized Economic Operator); and compliance with international standards. Further, the trade facilitation assessment will include consideration of tariff and non-tariff barriers (price control measures, antidumping and countervailing duties, sanitary and phytosanitary measures, technical barriers to trade, intellectual property regime, and standards), as well as import quotas for the principal commodities in the identified maritime trade corridors.

4.9 Identify based on the views of exporters-importers, shippers, producers and those engaged in international transit movements in the Roraima and Manaus the bases for the switching decision from the current route to Linden - Lethem corridor on toward to Port Georgetown. A willingness to pay exercise should also be conducted to complement the qualitative feedback from stakeholders. Also, analyze any changes required by shipping line for switching to Port Georgetown and the likely impact of changed routes for shipping lines. Recommend best approach for incentivizing shipping lines to utilize port Georgetown.

Activity 4: Workshops and Training

- 4.10 The Consultant would facilitate two (2) workshops and training sessions for the Ministry of Public Works (MPW) during the course of the study. The workshops will be in the form of presenting the results of the study in a setting that would allow interaction between the Consultants Team, MPW and the Bank that would both inform the client parties and offer feed back to the consultant. The training sessions would be in technical subject areas that are relevant to the study being undertaken. The topics for the training would be decided upon at the inception of the study through after consultations between the Consultants Team, MPW and the Bank.

V. CHARACTERISTICS OF THE CONSULTANCY

- 5.1 The Consultants will be responsible for carrying out the activities described in these Terms of Reference and delivering the reports identified in section VI. The Consultants will propose a team comprised of a Team Leader, a Maritime Transport Specialist, a Logistics Specialist, a Trade Facilitation Specialist, a Trade Economist or Statistician, and a Geographic Information System Specialist with the characteristics identified below. Additional members of the team may be proposed by the Consultants. The duration for the study would be 16 weeks.

Team Leader

- 5.2 The Team Leader should have experience in international operations. The Team Leader should hold a Master's degree in economics, engineering or related field and have at least 10 years of working experience in his/her area of specialization. He/She should have experience in coordinating multi-disciplinary teams and technical report writing. Experience in Brazil and particularly in the Caribbean will be valued.

Maritime Transport Specialist

- 5.3 The Maritime Transport Specialist should hold a Master's degree in engineering, economics, transport planning or related field and have at least 10 years of working experience in the trans-port sector. He/She should have extensive knowledge of regional shipping services, port infra-structure, and regulatory framework for maritime transport. The specialist should be confident using relevant modeling techniques. Experience in Brazil and particularly in the Caribbean is essential.

Logistics Specialist

- 5.4 The Logistics Specialist should hold a Master's degree and should have at least 10 years of working experience in his/her area of specialization. The specialist should have experience in logistics operations, supply chain management and trade logistics.

Trade Facilitation Specialist

- 5.5 The Trade Facilitation Specialist should have sound understanding of border management principles, security and risk management, and trade facilitation (including, if possible, automation and ICT). The specialist should hold a Master's degree and should have at least 10 years of working experience in his/her area of specialization. Experience in Latin America and particularly in the Caribbean will be valued.

Trade Economist or Statistician

- 5.6 The Trade Economist or Statistician should have sound experience in modeling and general understanding of trade policy in the Caribbean. The specialist should hold a Master's degree and should have at least 5 years of working experience in his/her area of specialization.

Geographic Information System (GIS) Specialist

- 5.7 The GIS Specialist should hold a Master's degree and should have at least 5 years of working experience in his/her area of specialization. The specialist should be acquainted with transport models, with particular emphasis on maritime transport.
- 5.8 The language of all reports will be English and all experts shall have a good command of English. The Consultant must specify the qualifications and experience of each key expert to be assigned to the assignment. For each key expert proposed, curriculum vitae of about 4 pages should be provided detailing the relevant experience and qualifications. Members of the consultancy team must have working experience in developing countries. The Consultant is free to define the individual duration of assignments and recommend changes to the composition of the team.
- 5.9 Unless otherwise agreed, the consulting services shall be performed at the Consultants, in Guyana and Brazil. Technical and clerical support, supplies and equipment necessary to accomplish tasks are to be provided by same. Missions to study region may have to be undertaken, where appropriate, in consultation with the Inter-American Development Bank for organization purposes. The Consultants shall assume all costs related travel and to the activities foreseen in these Terms of Reference and in agreement with the contract regulating these consulting services.

VI. REPORTS, OUTPUTS AND PAYMENTS

The progress and findings of the assignment will be presented in the following reports

- 6.1 Inception Report. This should set out clearly and concisely the approach to be adopted by the consultant to meet the objectives of the study. It shall contain the finalized schedule and workplan for the implementation of the consultancy, which will update the schedule proposed in the consultant's technical proposal for bidding
- 6.2 Identification and Assessment of trade corridors developed in Activity 1. This report will include geocoded data base.
- 6.3 Forecast of Trade Volumes developed in Activity 2. This report will contain current shipping volumes and projection for 20 years.
- 6.4 Freight Logistics and Trade Facilitation. This report would include the opportunity available to Guyana and estimation on the value of the shipping market that could be diverted.
- 6.5 Draft Final Report. This report will be a compilation of the reports for Activities 1, 2 and 3 along with an executive summary and a conclusions and recommendations

- 6.6 Final Report. This report will be a compilation of the reports for Activities 1, 2 and 3 along with an executive summary and a conclusions and recommendations and comments received from the IDB.
- 6.7 All reports shall be presented in one printed copy (including all appendices, drawings, tables and graphs) and in electronic form (editable and non-editable formats). The Consultant shall supply six additional printed copies of the Final Report (including all appendices, drawings, tables and graphs) and in electronic form (editable and non-editable formats).

The outputs / deliverables of the study shall be presented as follows

- 6.8 Inception Report shall be submitted to the IDB two weeks after the commencement date of the contract.
- 6.9 Identification and Assessment of trade corridors, Forecast of Trade Volumes and Freight Logistics and Trade Facilitation (Activity Reports) shall be submitted to the IDB in accordance with the Consultants Schedule in Inception Report but not later than 12 weeks after the commencement date of the contract.
- 6.10 Draft Final Report shall be submitted to the IDB at the end of 12 weeks after the commencement date of the contract.
- 6.11 Final Report shall be submitted to the IDB at the end of 16 weeks after the commencement date of contract (including 2 weeks for receipt of comments and 2 weeks to make any necessary changes following comments).

Payments

- 6.12 The payments will be done according to the following schedule:
- 15% upon signing of the contract
 - 10% upon submission of acceptance Inception Report
 - 30% total, 10% upon submission of each of the 3 Activities Reports
 - 5% on completion of Workshop and Training
 - 20% upon submission of the Draft Final Report
 - 20% upon approval of the Final Report

VII. COORDINATION

- 7.1 The IDB is the executing agency for the Consultancy on behalf of the Government of Guyana. The Consultant shall report to the IDB Project Team Leader who will be the administrator of the contract. The IDB Project Team and Ministry of Public Works will have a role entailing the reviewing and evaluation of the outputs and approving the study.
- 7.2 The MPW will facilitate the issuing of any permits required for the Consultant to carry out their duties and make available all relevant reports, documents, maps and data.

**TERMS OF REFERENCE
ENGINEERING STUDIES (GY-T1098)**

I. BACKGROUND

- 1.1 Guyana shares its borders with two northern Brazilian states, the States of Roraima and Para; and has traditional ties with the State of Amazonas whose capital city, Manaus is the primary economic zone of northern Brazil. Notwithstanding this, currently there is little trade between these states and Guyana. Further these Brazilian states are land locked with no direct access to ocean going shipping ports, and uses Atlantic ports in Brazil via the Amazon River and Venezuela. Virtually all the import and export movements of Manaus (Amazonia) and Boa-Vista (Roraima) are containerized.
- 1.2 Over the years, the Governments of both countries have been working towards their enhancement of trade, economic and physical integration. This cooperation has so far resulted in a paved road in Roraima, Brazil, up to the Takatu River border and the bridging of the Takatu River in 2009, at the border with Lethem.
- 1.3 The proposed land link will join the northern states of Brazil through the Guianas and facilitate shipping¹ access from port(s) in Guyana for imports and exports² to and from Roraima, and Amazonas and the northern Atlantic, the Caribbean, North and Central America. The development of this land transport link between the two countries and the port is also seen as critical in the fostering of this integration process for the Caribbean region as a whole which has a large trade deficit with Brazil although only importing 5%³ of its total imports from Brazil. Guyana, being a founder member of CARICOM (Caribbean Community), is in a position to further the relationship between Brazil and CARICOM.
- 1.4 It is envisioned that Guyana's integration with Brazil has the possibilities to open up foreign markets to Guyana's exports, lowering transportation costs while at the same time, increasing competitiveness through increased economies of scale, and also, increasing the flexibility of labour supply which will result in less unemployment.
- 1.5 Guyana is a nation of approximately 766,000 residing within a territory of 215,000 square kilometers. The country possess a rich natural resource base, with more than 80 percent of each territory covered in largely intact lowland and sub-montane tropical forest, and dozens of moderate to large unaltered rivers extending from the southern interior to the north. The rich biodiversity of this area includes rare and endemic plant species and endangered species of wildlife.
- 1.6 The current Guyanese road to the Brazilian border in the south commonly known as the Linden – Lethem road bisects the Iwokrama International Rainforest Programme

¹ Feasibility and Preliminary Design Report (2012), SNC Lavalin: Containers from Amazonas and Roraima to an Atlantic port takes 5 days and 6 days respectively and would take 2 and 1 day(s) should a port in Guyana be used.

² Instituto Brasileiro de Geografia e Estatística (2009): The Manaus Port in 2009 handled 1,580,802 tons of import/export cargo from Amazonas and 32,008 tons from Roraima.

³ Private Sector Trade Note (2009), CARICOM Office of Trade Negotiations: CARICOM 2009 exports to Brazil were US\$196,232,000 and imports were US\$3,179,680 which represents 5% of the total exports.

(IIRFP) reserve, a Commonwealth-supported experimental forest management Project and one of only two legally protected areas in Guyana. Apart from being the site of a number of protected species under the Convention of International Trade in Endangered Species (CITES) of Wild Fauna and Flora, such as the Arapaima fish (*Arapaima gigas*) and the Striped Owl (*Asio clamator*), the Reserve and other areas contain a number of archaeological sites that such as petroglyphs that require further exploration. The improvement of the Linden – Lethem road has been the subject of intermittent discussion and study over many years.

- 1.7 The studies for the Guyana – Brazil Land Transport Link and Deep Water Port Project will examine various land transport modality and alignment options available for the various choices of port sites in the estuaries of the Essequibo, Demerara or Berbice rivers or Guyana’s Atlantic coast. Once this Project is implemented there will be a significant increase in the accessibility of the two countries’ hinterland region for development and economic activities.

II. CURRENT SITUATION

- 2.1 The State of Roraima is situated on the frontier of Guyana and Venezuela and has a population of 456,000. The principal disadvantage of its location is that it is in the interior of the country and far from the markets which are principally in the south of Brazil (São Paul, Rio de Janeiro). Consequently, the State is faced with high transportation costs.
- 2.2 Roraima is however, close to the markets of its neighbours – Venezuela and Guyana. Most of the principal ports for transporting produce from Roraima (e.g. Puerto Cabello, Maracaibo, Ciudad Bolivar, Itacoatiara) are between 836 and 1614 km from Roraima’s Capital, Boa Vista. Georgetown, however, is approximately 550 km from the Boa Vista and is therefore of primary interest for logistic reasons as there would be very significant distance (and possibly cost) savings via the Guyana route.
- 2.3 According to the 2012 feasibility study⁴ of the Linden Lethem road, a paved asphalt road would be the road improvement option that could see potential flows of imports and exports from the State of Roraima and Manaus being diverted to Port Georgetown.
- 2.4 The road upgrade would improve transportation between Guyana and Brazil with a view to promoting integration, trade and cultural exchange, boost economic development particularly in Roraima and Guyana. These would be facilitated through the export/import of goods to North America, Central America and the Caribbean through port services available in Guyana and create a north-south transportation corridor to help integrate northwestern Brazil with the capital of Guyana.
- 2.5 The improved road link would facilitate exports/imports to and from Roraima and Manaus through the Port in Georgetown or through a proposed Deep Water Port in New Amsterdam Berbice which is being contemplated by the Government of Guyana.

⁴ SNC Lavalin and Vikab (Guyana) Ltd (2012) Consultancy Services For Georgetown-Lethem Road Project Feasibility Study, Final Feasibility And Preliminary Design Report, Volume I, Georgetown.

- 2.6 Virtually all the export and import movements of Manaus and Boa-Vista are containerized. The trend growth of Manaus' deep sea container traffic between 1998 and 2012 was just under 7% a year. It is estimated that this growth will continue.
- 2.7 While the distance savings by road would be greater for Boa Vista than for Manaus to an Atlantic port, both could enjoy time and cost savings by utilizing the Guyana route for exports/imports to and from these cities.
- 2.8 According to the recent feasibility study⁵ for the Linden Lethem road, the time taken for a 40ft container to travel along the Amazon River from Manaus to a port in Brazil for further transshipment to Caribbean or North America is 3 days more than it would take using the Linden-Lethem corridor. The river route is also estimated to cost 50% more than the Guyana land route.
- 2.9 Roraima's main international exports are processed timber products, animal hides and derivatives, and soya which has grown rapidly in importance. Technology has been developed to maximize the production of rice, soya, corn, sunflower and fruits.
- 2.10 The zoning of the Roraima is currently in its final stages and it is anticipated that three (3) million hectares of land would be available for agricultural production. This could present great opportunities for creating a production chain in the Caribbean, but the infrastructure has to be first developed.

III. DESCRIPTION OF CURRENT ROAD CORRIDOR AND PORT

- 3.1 The 453.7 km existing road between Linden and Lethem is almost entirely unpaved and forms part of a 558 km potential through-route from the Brazilian border at Lethem to Georgetown.
- 3.2 The Georgetown-Linden section (105 km) is a paved road with two lanes except for a short segment with 4 lanes on the outskirts of Georgetown, which is in good condition. From the Demerara Harbour Bridge to the Soesdyke junction (27 km), the road is a single carriageway asphalt pavement, approximately 6m wide. The land use is mainly urban to peri-urban with typical ribbon development, less than a kilometre deep. On both sides of the road there is a mixture of residential, religious, commercial and industrial activities. In places, the road reserve is less than 2 metres as a result of encroachment from small shops and other premises.
- 3.3 From the Soesdyke junction to the Linden junction (74 km) the road is a single carriageway paved road, approximately 7m wide. From just before the Soesdyke junction there is a rapid transition from peri-urban to rural land use. This comprises intermittent patches of subsistence farming in mixed degraded forest on relatively infertile soil, which continues to just before Linden where peri-urban land use predominates for approximately 3 km. Crops include cassava, mango and papaya trees. In addition, small-medium scale sand mining is carried out on both sides of the road for about 20 km from the Soesdyke junction. In addition, charcoal burning remains a major form of occupation for occupants along the Linden-Soesdyke highway.

⁵ SNC Lavalin and Vikab (Guyana) Ltd (2012) Consultancy Services For Georgetown-Lethem Road Project Feasibility Study, Final Feasibility And Preliminary Design Report, Volume I, Georgetown.

- 3.4 The Linden-Lethem section extends from the road junction just west of the Wismar Bridge (Linden) at the northern end to Lethem at the southern end, at the point where the access road to the new Takutu Bridge and the Brazilian border begins. The road can be sub-divided as follows:

Table 1

Section	Length (km)	Surface Type
Linden - Mabura Hill	2.58	DBST
Linden - Mabura Hill	122.45	Unpaved
	125.03	
Mabura Hill – Kurupukari	107.64	Unpaved
Kurupukari – Annai	102.26	Unpaved
Annai – Lethem	118.80	Unpaved
Total Length	453.72	

- 3.5 The following road condition descriptions are based on observations done on the Linden-Lethem road during the pre-feasibility study in March 2008.
- 3.6 The section from Linden to Mabura Hill begins with a failed DBST surfaced road (9.6 meters width) and continues as an unpaved laterite surfaced road with an average formation width of 15 meters. The condition of this unpaved section is two fold. The riding quality for approximately 90 km is very poor with average speeds of 35 km/hr while the remaining 32 km is in good condition with average travel speeds of 60 km/hr.
- 3.7 The section from Mabura Hill to Kurupukari is an unpaved laterite and white sand/sand clay surfaced road with an average formation width of 6 meters. The first 25.75 km is in relatively good condition with average travel speeds of 60 km/hr. The remaining 82.4 km is in poor condition, inundated with large potholes, with average travel speeds of 30 km/hr. The alignment is poor owing to numerous sharp bends and blind corners. This section of road is a forestry type road which has replaced the engineered road because of the collapse of a bridge on the engineered road a few years ago. At Mabura Hill (226 km) the road passes through the Demerara Timber Limited sawmill complex and through its timber concession for the next 109 km until just before Kurupukari.
- 3.8 At Kurupukari, there is a toll ferry which crosses the Essequibo River and operates during day light hours and upon request. Immediately south of the ferry crossing one enters the Iwokrama International Centre for Rain Forest Conservation and Development, one of two protected areas in the country, and the road passes through it for some 75 km. At km 418 there is a marked transition from forest to open savannah, namely the Rupununi Savannah. The Kurupukari to Annai section is an unpaved laterite surfaced road with an average formation width of 9.3 meters. However this width is reduced to 6.8 meters for much of the length due to encroaching vegetation. The surface is in relatively good condition with average travel speeds of 65 km/hr.
- 3.9 The Annai to Lethem section is an unpaved laterite surfaced road in fair to good condition, permitting average travel speeds of 50 km/hr. This section has however been subject to seasonal flooding. There are a number of sharp bends and blind corners around the hills which impair site distance over about 16 km of the section.

Some 20 km before Lethem the topography changes from flat to gently rolling hills with periodic occurrences of natural laterite on the crest of the hills. The land use for the last 2.5 km before entering Lethem is peri-urban and the survey of the road ended at km 553 in Lethem.

- 3.10 There are 51 bridges and 135 culverts on the Linden-Lethem road, distributed as follows:

Table 2

Section	No. of bridges	No. of culverts
Linden - Mabura Hill	1	5
Mabura Hill – Kurupukari	14	13
Kurupukari – Annai	22	19
Annai – Lethem	14	98
Totals	51	135

- 3.11 The bridges along the Linden-Lethem road are principally of timber construction and are in varying degrees of disrepair, as are the culverts.
- 3.12 The Port of Georgetown (PTG) supports a complex mixture of activity and is not simply a place where ships and cargo are handled. The extent of the activity that the port supports and generates is directly related to the level or volume of business it handles. It is worthwhile noting from the point of view of identifying the expected economic benefits from the improvement of the road and subsequent use by Brazilian business can generate, the PTG performs five basic functions⁶:
- 3.13 A **nodal** function: a seaport is essentially a nodal point in logistics networks, a link in a chain where cargo flow change mode of transport. To fulfil this nodal function, a seaport must have adequate access (maritime and landside) and port-internal infrastructure.
- 3.14 A **business location** function: industrial companies, logistic service providers and cargo handling companies settle in port areas to produce, add value to, process, store and handle goods. Managing sites for these businesses forms a second port function.
- 3.15 A **nautical** function: the third function concerns the performance of public nautical tasks to ensure an efficient, safe, clean and secure handling of ships.
- 3.16 A **community** function: a seaport does not exist in isolation from the community (city, region, country) in which it is embedded. The fourth function of a seaport is to add value to that wider community. Ports also take part in the territorial development of Member States and the EU.
- 3.17 Ports often also have a **borderline** function, with consequent implications regarding customs, security, health etc.
- 3.18 In a 1998 Study⁷ it was estimated that the size of the vessels needed to meet the shipping service needs of the Brazilian traffic will require a number of major changes

⁶ ESPO, 2006, Recommendations for the consultation process on European seaport policy, <http://www.espo.be/downloads/archive/b6b502a5-e118-47fa-a7f5-047f7ae8b709.pdf>

⁷ IADB, 1998, Examination of Major Alternatives for the Establishment of a Deep-Water Port in Guyana, IDB, Guyana.

to be undertaken to improve port access by sea and by land, development of berths, storage areas, security services, customs facilities, road and parking access, etc. The size of the ships that would need to be accommodated to handle the expected Brazilian trade would include the following:

- 3.19 Regional feeder services operating within the Caribbean Basin using small geared ships ranging from between 100-300 TEUs, including non-containerized ships serving volume ports.
- 3.20 The direct services connecting the Caribbean Basin with ports on the South and East Coast USA including for example: the ports of Houston, Florida Everglades, and Baltimore. Ships on this trade would include multi-purpose, geared with an equivalent capacity of about 350 TEU and depending on the demand and port and terminal access constraints up to 600 TEUs.
- 3.21 Europe and Far East Direct Service are using relatively large geared and gearless ships of about 1,000 TEUs.

IV. TIMELINE OF KEY EVENTS IN ROAD'S HISTORY

- 4.1 There has been a long history of discussions, agreements, studies and bilateral initiatives relating to the improvement of the road. However the most pertinent are summarized below.
- 4.2 1976-78: The Ministry of Works and Hydraulics constructed a gravel road between Wismar (Linden) and Mabura Hill.
- 4.3 1980s: Demerara Woods Ltd. undertook to open up a 60 km primary logging trail from Mabura Hill towards Kurupukari.
- 4.4 1981: The Brazilian firm Gutierrez / PRODEC carried out an initial feasibility study of the road with economic, financial and technical proposals for its completion. Although the Brazilian Government indicated that the study provided the basis for a financing proposal within three months, no formal proposals were ever received.
- 4.5 1981-82: Home Oil upgraded the 55 km section of the road north from Lethem. This was later further upgraded as far as Point Ranch by the Brazilian company Paranapanema.
- 4.6 1987 (November): The Ministry of Communications and Works published a project Dossier for the Guyana – Brazil road.
- 4.7 1988: Formation of the Trail to Rupununi Association, which had as its aim the establishment of a fair-weather trail from Mabura Hill to Lethem to provide overland access to the Rupununi. Some progress was made in clearing a trail and re-establishing bridges.
- 4.8 1989: A technical and economic feasibility study for upgrading the road was carried out by TecNecon for the Secretariat of the Caribbean Community with financing from the Commission of the European Communities.
- 4.9 1989 (November): The Brazilian firm Paranapanema was awarded the contract for Phase 1 which involved:

- a. survey and design from Lethem to Kurupukari (224 km)
 - b. upgrading the Lethem-Annai section (125 km)
 - c. constructing the Annai-Kurupukari section (125 km)
 - d. design and supply of river crossing facilities at Kurupukari on the Essequibo River
 - e. Phase 1 was completed in August 1991.
- 4.10 1994 (October – December): An environmental impact assessment of the road completion proposals was commissioned by the Ministry of Public Works, Communications and Regional Development. It was undertaken by Environmental Resources Management with financial assistance from the World Bank and completed in April 1995. The study evaluated the direct and indirect environmental and social impacts of construction and operation of 3 improvement options (forest road, all-weather gravel road and paved road) on the existing alignment, and the possible realignment of one section between Mabura Hill and Kurupukari (101 km).
- 4.11 2000: A detailed technical and economic feasibility study financed by the European Union was undertaken by ADK – Alexander Gibb. This study considered 3 improvement options: (i) current design with minimum earthworks, (ii) 10 m all-weather gravel road; and (iii) 7 m paved road. Detailed estimates were made of potential traffic generation and developmental benefits in the Rupununi and potential Brazilian traffic generation and diversion. The study also considered that Guyana's port facilities did not pose a problem for potential Brazilian container traffic using the road.
- 4.12 2002 (May): Mekdeci Machinery and Construction Company (MMCC) was awarded the contract to operate the Kurupukari Ferry over the Essequibo River and charge tolls. Proceeds from toll revenue were supposed to contribute to road maintenance funds for the MMCC sections, but low traffic levels limited this contribution.
- 4.13 2005 (September): A task force appointed by the Prime Minister reviewed the arrangements for the continued rehabilitation and maintenance of the MMCC contracted sections between Kurupukari and Lethem, some of which had suffered severe flooding following the exceptional rainfall experienced at the time. Road conditions in the MMCC sections were found to be fair to satisfactory, but the "Hunt Oil" sections between Lethem and Toka, which were prone to flooding, were deemed to require rehabilitation. A total of 39 bridges between Kurupukari and Lethem were found to require rehabilitation.
- 4.14 2006: The Guyana Transport Sector Study, using data from the 2000 ADK / Gibb feasibility study, evaluated three improvement options:
- a. minimum earthworks and widening to an 8m gravel road
 - b. realignment and widening to 10m gravel standard, with concrete bridges
 - c. realignment and widening to 14m and paving, with concrete bridges
- None of these was found to be economically feasible.

- 4.15 2008: A Pre-Feasibility Study of the Georgetown-Lethem road was conducted by international consultants Mott MacDonald Limited in association with Cemco Inc. of Guyana. Four alternatives for improving the Linden-Lethem road were considered, and the improvement costs and annual maintenance costs for each were determined. An economic appraisal was carried out for the 4 improvement alternatives with an appraisal period of 2013-2032. The results yielded an economic internal rate of return (EIRR) of 15.2% for Alternative 3 (improvement to paved road (DBST) standard with replacement of the existing timber bridges with steel bridges), when the road was analyzed as a whole with the inclusion of Brazilian diverted traffic. The potential inclusion of a bridge over the Essequibo River at Kurupukari was not considered in the pre-feasibility study. However, highly provisional estimates suggest that such an inclusion would result in an EIRR of 13%-14% for Alternative 3.

V. SUMMARY OF MOST RELEVANT STUDIES OF THE ROAD AND PORT

- 5.1 The improvement of the Linden – Lethem road has been the subject of intermittent discussion and study over many years. The following studies are the most relevant:
- 1989 TecnEcon-Gibb Feasibility Study funded by the European Union
 - 1995 Environmental and Social Impact Report funded by the World Bank
 - 2000 ADK-Gibb Feasibility Study funded by the European Union
 - 2006 GOPA Transport Sector Strategy Study funded by the European Union
 - 2008 Mott MacDonald - CEMCO Pre-Feasibility Study funded by the Inter-American Development Bank
 - 2012 SNC Lavalin: Feasibility Study funded by the Inter-American Development Bank (incomplete)
- 5.2 The first three studies of the road started out from a situation where the southern half of the road was in extremely poor condition and virtually impassable during significant parts of the wet season.
- 5.3 The 1989 TecnEcon study suggested that the rehabilitation of the section of the road between Mabura Hill and Lethem (329 km) to good 6m gravel standard might be economically feasible, but emphasized the need for further engineering and economic study to determine roadworks costs more accurately. It also pointed out the potential for diversion of Brazilian transit traffic to the route.
- 5.4 The 1995 Study recommended upgrading the Mabura Hill – Kurupukari section of the road to a forestry road standard. No immitigable environmental impacts were foreseen.
- 5.5 The 2000 ADK-Gibb study recommended a partly re-aligned 10m gravel road amongst other things, but, with an internal rate of return of 10.6%, the Project was not economically feasible assuming a feasibility threshold of a 12% internal rate of return.

- 5.6 The most recent and possibly the most relevant study is the Pre-Feasibility Study undertaken by Mott Macdonald – CEMCO in early 2008. This study defined the following four improvement options for economic appraisal:
- Alternative 1 – improvement to engineered gravel standard and replacement of bridges with timber bridges
 - Alternative 2 – improvement to engineered gravel standard with replacement of existing timber bridges with steel bridges
 - Alternative 3 – improvement to paved road (DBST) standard with replacement of the existing timber bridges with steel bridges
 - Alternative 4 – improvement to paved road standard (DBST) and replacement of exiting timber bridges with concrete bridges
- 5.7 An assessment of exiting traffic on the road was based on the results of a traffic count at the northern end of the road, a detailed analysis of the ferry records at Kurupukari and an analysis of the records of cross-border traffic near Lethem. These analyses suggested that traffic using the road was significantly higher than had been assumed in earlier studies, probably in response to improvements in the road's condition in recent years. Forecasts of potentially divertible Brazilian transit traffic were based on updating the earlier forecasts in the 2000 feasibility study. The economic appraisal of the alternative improvement options indicated that Alternative 3 (paved road with steel bridges) costing US\$ 117.29 million would be economically feasible on the basis of attracting significant volumes of Brazilian diverted traffic. In the absence of Brazilian diverted traffic, only improvement of the northernmost section to Mabura Hill was shown to be economically justified.
- 5.8 There has been discussion on the possibility of a railway in place of a road between Linden and Lethem. However there has not been any study examining this alternative land transport and its feasibility.
- 5.9 The subject of a deep water port in Guyana has been studied in two separate instances as shown below:
- 1998 Ashar and Woodbury Examination of Major Alternatives for the establishment of a Deep Water Port in Guyana funded by the Inter-American Development Bank
 - 2010 Indian Ministry of Shipping, Report of Study Team on the Construction of a Deep Water Port in the Berbice River of Guyana
- 5.10 The Ashar and Woodlbury Report examined a total of eight sites lone in the Essequibo River, five in the Demerara River and two in the Berbice River. The demand used in the study was 20,000 TEUs for a low scenario and 40,000 TEUs for a high scenario. The Demerara River sites were most favorable for both demand scenarios with a site south of the Georgetown and below the harbor bridge. The report cautions that because of the limited scope of the budget of the study, some critical inputs were based on preliminary estimates and assumptions. It further stated that, the inputs should be further investigated and substantiated if an action based on the report recommendations was to be undertaken.

- 5.11 The Indian Ministry of Shipping Report focused on the port in the Berbice River without considering alternatives in Demerara and Berbice River. The demand analysis prepared to justify the Project applied the projected GPG growth rate to the current container traffic in the Georgetown port while making projections for traffic from Brazil and Suriname. None of the projection was done in a detailed manner.

VI. OBJECTIVES

The primary objectives of the Engineering studies can be summarized as follows:

General Objectives

- 6.1 The General Objectives of the study are as follows:
- definition of suitable land transport modalities
 - identification of alternative port sites and corresponding land transport alignments
 - defining homogenous segments within each alternative alignment
 - conceptual works designs for each port site and land transport alignment alternative
 - assessment of the technical, social, environmental and economic viability of the different segments and port sites in collaboration with the Environmental/Social and Financial/Economic Teams

Special Objectives

- 6.2 The consultant will provide various Project alternatives for the construction of a port in the estuaries of any of Guyana's three main rivers; Essequibo, Demerara or Berbice, or at a point along Guyana's Atlantic coast. The various land transport links (road and rail) with the ports would be investigated and conceptual/preliminary designs proposed for the different port and land transport combination.
- 6.3 The consultant will collect and analyze all information from previous studies relevant to the current Project. These would include the Market Study prepared in Component 1 of the Technical Cooperation along with technical, economic, environmental and social studies, including public consultations. This shall be carried out in sufficient detail for each Project option to allow for: selection of design standards; identification of design and/or 'constructability' constraints; conceptual designs; and estimated costs inclusive of the expected cost of mitigating environmental and social issues such as property acquisitions etc. On the basis of this examination, the consultant is expected to refine the Project options in order to develop the Project alternatives acceptable to the Bank and GoG (Government of Guyana).
- 6.4 The design alternatives must also examine a phased implementation of the Project based on the projected growth in transportation demand. These could include combinations of the existing land routes and port followed by a new port and additional land transport modes and routes.
- 6.5 Data collection and assessment – Land Transport: Collect and assess data on the existing trails/road and their conditions, traffic volumes and forecasts, and conduct

topographical surveys, geometric surveys, geotechnical surveys, hydrological evaluations, and road safety evaluations. Port: Collect and assess data on the existing port conditions (draft and berth characteristic) shipping volumes and type, and forecasts, and conduct site assessments, hydrographical surveys, geotechnical surveys and, tidal and hydrodynamic evaluations.

- 6.6 Technical analysis – Land Transport: Investigate at a minimum, possible vertical and horizontal alignments, possible realignment, widths, technical standards, bridges, drainage, critical sections, right of way and land expropriation, and utility requirement and relocation. Port: Investigate at a minimum, ports sites in the estuaries of the Essequibo, Demerara and Berbice Rivers and the Atlantic coast, determine the natural depth and dredging requirements (construction and maintenance), technical requirements for berths, navigation requirements, storage needs and land expropriation and utility requirement.
- 6.7 Evaluation – Estimate the projected work quantities and cost of each alternative. Prepare Bill of Quantities, conceptual drawings for each alternative. Determine the locations of required construction materials. Establish appropriate administrative and maintenance requirements, and safety features.

VII. ACTIVITY TO BE COMPLETED / METHODOLOGY

In order to achieve the objectives of the land transport study aspect of the assignment, specific activities to be completed include, but are not limited to, the following:

Studies and Documents Review

- 7.1 The Consultant shall review all previous studies done on the Georgetown-Lethem road corridor and other interior roads and transportation modes. The Ministry of Public Works (MPW) would supply a copy of all available previous studies to the Consultant.

Identification and Condition Assessment of Roads and Trails:

- In consultation with the Guyana Land and Surveys Department, Guyana Geology and Mines Commission and the Guyana Forestry Commission; identify all existing road and trails leading to the coast and the estuaries of the Essequibo, Demerara and Berbice River. Conduct a condition survey and prepare a condition survey report based on identified roads/trails which shall consist of, but not be limited to the following. Roads/trails condition survey - The road condition survey shall focus on the physical condition of the road/trail alignments, type of surface, type of subgrade, drainage, road performance and the existing natural terrain in terms of geological, soil, materials and topographic characteristics. The Consultant shall define criteria for the categorisation of road alignment as good, fair and poor.
- Safety survey - The road safety survey shall identify the areas of the road which make it unsafe to traffic including sharp bends, blind spots, narrow widths, steep gradients, bridge approaches and inadequate sight distances.
- Stream crossing condition survey - The stream crossing condition survey shall focus on the physical condition of the structures, their functionality, safety and

deficiencies. Detailed surveys shall be undertaken on the condition, type and size of key structural elements. High water levels shall be determined for each structure. If the structure is engineering sound, the Consultant is required to estimate its load carrying capacity and its residual life.

Geotechnical / Materials Survey

- 7.2 Sink test pits along the road/trail to determine the material stratification from surface to subgrade levels, and the water table depths. The locations of the test pits shall be based on the Consultant's analysis of the road condition survey and the Consultant shall ensure that the frequency of the test pit locations shall provide sufficient information in assessing the existing material stratification regime along the road.
- 7.3 Conduct Dynamic Cone Penetrometer (DCP) test or equivalent internationally accepted test procedure to determine strength profiles of the existing road. The locations of the DCP test shall be based on the results of the test pits survey and the Consultant shall ensure that the frequency of the DCP test locations shall provide sufficient confidence levels of the material strength regime along the road.
- 7.4 Conduct Falling Weight Deflectometer (FWD) test or equivalent internationally accepted deflection test procedure for unpaved roads, in order to determine the resilient moduli of the subgrade and road structure layers. The frequency of testing shall be designed so that the variability of the subgrade modulus along the road corridor can be assessed to a level which would facilitate preliminary engineering designs.
- 7.5 Identify and map possible sources of naturally occurring road building materials along the route that are relevant to this Project. Give recommendations on the preferred type of road building material and blends of materials based on local deposits. Prepare a geotechnical / materials report detailing the findings.

Traffic Forecasts and Axle Load Survey

- 7.6 Using the results of the Market Study, create traffic scenarios corresponding to the traffic estimation and projections.
- 7.7 Conduct axle load surveys at three locations on the Linden-Lethem road: at Mabura Hill, Kurupukari and Lethem in the vicinity of the Takutu Bridge. The Consultant will use the results of the survey to calculate wear factors to be used in determining the design traffic as part of their pavement design.
- 7.8 Determine truck axle loads of potential diverted traffic from the Manaus – Boa Vista – Venezuela road route.

Topographical Surveys

- 7.9 Conduct topographical surveys of road/trails in sufficient detail to permit preliminary engineering designs and a safety audit. All elevations shall be referenced to the Georgetown Datum.
- 7.10 Prepare plan/profile and cross section drawings.

Hydrological and Drainage Evaluations

- 7.11 Collect and analyse rainfall data for the catchment areas. Develop drainage criteria and check adequacy of drainage structures and requirements for replacements.
- 7.12 Determine flood levels on the various sections of road which are in low lying areas and have historically been subjected to flooding particularly the Annai to Lethem section and propose mitigating measures taking into consideration the natural ecosystem and need for movement of water across the alignment.
- 7.13 Investigate erosion of sections of road/trail and propose mitigating measures or realignment. Prepare a Drainage Report based on the findings.

Safety Audit

- 7.14 Identify, through observations and topographic surveys, safety deficiencies in the existing road/trails alignment and geometry.
- 7.15 Propose alternative alignments and/or geometry of the road at the areas where road safety deficiencies exist.
- 7.16 Investigate the alignment of adjacent and alternative forestry and mining roads/trails. Identify and quantify any land acquisitions and resettlement requirements that may be necessary to permit re-alignment.
- 7.17 Prepare preliminary engineering designs of the modified road alignment and/or geometry. Prepare alignment plans, longitudinal and cross-sectional drawings showing improvement proposals. Prepare cost estimates for these preliminary engineering designs. Prepare a Road Safety Audit Report detailing the findings of 7.14 to 7.16.

Alternative Designs and Costs

- 7.18 Expand the range of design alternatives and evaluate new alternatives alignments. The proposed design alternatives must include road design alternatives and bridge / drainage structures design alternatives as well as a rail alternative. The alternatives should be for a complete Project catering for Brazilian traffic, a phased construction based on traffic growth scenarios, and staged or sectional construction based on locally generated traffic alone.
- 7.19 Prepare cost schedules and engineer's estimates in Bill of Quantity format.
- 7.20 Incorporate recommendations from the safety audit and prepare preliminary plan/profile and cross-section drawings.
- 7.21 Prepare a time-line for the Guyana – Brazil Land Transport Link.
- 7.22 Evaluate the maintenance regimes and annual maintenance costs for alternatives.
- 7.23 Give recommendations on the most appropriate road improvement Project.
- 7.24 Prepare a Report on Alternative Designs.

Preliminary Design of Alternatives for a Bridges across the three main rivers: Essequibo, Demerara and Berbice Rivers

- 7.25 The preliminary engineering studies for the bridge alternatives where the road alignment crosses Guyana's three main rivers being the Essequibo, Demerara and Berbice Rivers especially at Kurupukari on the Essequibo River. These will be to the extent that a reasonable cost could be estimated, including, where necessary, approach roads, toll facilities and the associated infrastructure. The Consultant is expected to consider alternative locations for the bridge. Furthermore, it will be up to the Consultant to determine, specify and carry out any field investigations such as, hydraulic survey, which it considers necessary to develop technical viable options and reasonable cost estimates. This should include, but not necessarily limited to the following:
- Project planning cost estimates for any necessary approach road requirements, toll facilities and possible land acquisition
 - Location and alignment of bridge approaches for each crossing location and alignment for each site
 - Vertical and horizontal clearances in case of bridges under main span for each site
 - Toll collection system
 - Design layouts of bridge and road approaches for each site
 - Buildings and operational facilities for operation, administration and police or security personnel

Institutional analysis and management for roadway or railway

- 7.26 Consider local experiences and initiatives as well as best practices in the Amazon Region and internationally with respect to the management of road/rail corridors and propose the most viable management structure to ensure the sustainability of an upgraded road or new rail with respect to institutional, technical, regulatory and operational aspects. This should include a review of the Guyana Transport Sector Study, Iwokrama Road Corridor Management Plan and other relevant reports and documents.
- 7.27 Options to review at a minimum are a road or rail authority, a board and a reformed ministry structure.
- 7.28 Conduct relevant stakeholder consultations to ensure sustainability of proposed solutions.
- 7.29 Review the Roads Act and existing legal and institutional framework for compatibility with proposals.
- 7.30 Investigate and propose new or revised weight limits for the road corridor that can safely facilitate the movement of potential diverted traffic from Brazil up to Georgetown.

- 7.31 Propose options for the technical management and administration of the upgraded corridor or rail.
- 7.32 In order to achieve the objectives of the deep water port study aspect of the assignment, specific activities to be completed include, but are not limited to, the following:

Identification of Alternative port sites

- 7.33 In consultation with the Guyana Land and Surveys Department, Transport and Harbours Department and the Maritime Administration (MARAD) identify potential site the estuaries of the Essequibo, Demerara and Berbice Rivers for the deep water port including the current Demerara port site. At minimum the sites identified in the 1998 Ashar and Woodbury study and the 2010 Indian Ministry of Shipping study should be considered.
- 7.34 Conduct a survey of identified site which shall consist of but not be limited to:
- 7.35 Hydrographical survey - The survey should determine the natural water depth of the harbour site and the approach channels. Determine the location of the natural water channels relative to the coast or river banks and the layout of the river in the horizontal planes with emphasis on the radius of bends and turns. The frequency of the measurements should be made in order to produce plans which could be used to determine the dredging needs for the development of the port.
- 7.36 Hydrodynamic Conditions – For each port site, determine the tidal levels (extreme and regular); the velocity and direction of currents by season and depth profile, wave height, frequency and direction.
- 7.37 Sediment Transport – Determine the sediment transport volume at the identified sites including the type of sediments and the trends observed over time regarding deposits and erosion. The best estimation of annual sediment deposit volumes should be determined to inform maintenance needs.
- 7.38 Land Side Surveys: On the land side, conduct preliminary surveys to establish of the landside topography to inform facility development and design.
- 7.39 Prepare a site parameters report based on the findings.

Geotechnical / Materials Survey

- 7.40 Conduct borehole investigation at the site to determine the classification of the soil, its strength, consolidation properties and the like.
- 7.41 Determine the requirements for the foundation of the structures which would be required for the port.
- 7.42 Identify and map possible sources of naturally occurring building materials in the vicinity of the site that are relevant to this Project.
- 7.43 Give recommendations on the preferred type of building material and blends of materials based on local deposits.
- 7.44 Prepare a geotechnical / materials report detailing the findings.

Demand Forecasts

- 7.45 Using the results of the Market Study, create demand scenarios corresponding to the cargo estimation, projections and type.
- 7.46 Based on these scenarios select an appropriate design vessel(s) to be used for the design of the port.

Alternative Designs and Costs

- 7.47 Propose design alternatives for the port (landside and waterside) and any ship channel required to enter the port. The proposed design alternatives must include different structure types as well as phased development to increase capacity as the demand grows.
- 7.48 Prepare a time-line for the Deep Water Port.
- 7.49 Evaluate the maintenance regimes and annual maintenance costs for alternatives.
- 7.50 Give recommendations on the most appropriate port Project.
- 7.51 Prepare cost schedules and engineer's estimates in Bill of Quantity format.
- 7.52 Prepare a Report on Alternative Designs.

Institutional analysis and management for the port

- 7.53 Consider local experiences and initiatives as well as best practices in the Amazon Region and internationally with respect to the management of ports and propose the most viable management structure to ensure the sustainability of port with respect to institutional, technical, regulatory and operational aspects.
- 7.54 Review the structure of MARAD in light of the development and the demands that would be placed on that institution.
- 7.55 Conduct relevant stakeholder consultations to ensure sustainability of proposed solutions.
- 7.56 Review the Maritime Act and existing legal and institutional framework for compatibility with proposals.
- 7.57 Propose options for the technical management and administration of the port.

Workshops and Training

- 7.58 The Consultant would facilitate three (3) workshops and training sessions for the Ministry of Public Works (MPW) during the course of the study. The workshops will be in the form of presenting the results of the study in a setting that would allow interaction between the Consultants Team, MPW and the Bank that would both inform the client parties and offer feed back to the consultant. The training sessions would be in technical subject areas that are relevant to the study being undertaken. The topics for the training would be decided upon at the inception of the study through after consultations between the Consultants Team, MPW and the Bank.

VIII. OUTPUTS / DELIVERABLES

- 8.1 The progress and findings of the assignment will be presented in the following reports:
- Inception Report. This should set out clearly and concisely the approach to be adopted by the consultant to meet the objectives of the study. It shall contain the finalized schedule and workplan for the implementation of the consultancy, which will update the schedule proposed in the consultant's technical proposal for bidding
 - Progress Reports. These will indicate the progress and summary of conclusions at the following phases: (i) fieldwork; (ii) road/rail alignments and port sites; (iii) traffic scenarios; and (iv) concept of design alternatives. They will form the basis for consultations with the MPW and the IDB through progress meetings
 - Draft Final Report. This will contain the findings of the study, the supporting evidence and a full description of the methods used to meet the study objectives
 - Final Report. This will incorporate the consultant's responses to the clients' comments on the Draft Final Report
- 8.2 All reports shall be presented in one printed copy (including all appendices, drawings, tables and graphs) and in electronic form (editable and non-editable formats). The Consultant shall supply six additional printed copies of the Final Report (including all appendices, drawings, tables and graphs) and in electronic form (editable and non-editable formats).

IX. CONSULTANCY SPECIFICATIONS

Type of Consultancy

- 9.1 The consultancy will require the services of an international consulting firm with extensive experience in road/rail, ports and transportation engineering, and in conducting feasibility studies. It is essential that the consulting firm demonstrate experience working on such studies in developing countries, particularly in the Caribbean and Latin American region.

Financing

- 9.2 The cost of the consultancy will include the consultant's remuneration as well as the costs of all incidentals associated with the conduct of the consultancy. The incidentals include, but are not limited to: surveys, field tests, trips, travel allowances, international calls, local transportation, secretarial expenses, copying and office supplies. The cost of the consultancy will include the consultant's remuneration as well as the costs of all incidentals associated with the conduct of the consultancy. The incidentals include, but are not limited to: surveys, field tests, trips, travel allowances, international calls, local transportation, secretarial expenses, copying and office supplies.

Duration

- 9.3 The duration of the study shall be 48 weeks.

Location

- 9.4 The study shall be carried out in Guyana but will also require research and travel to Brazil.

Reporting Schedule

- 9.5 The outputs / deliverables of the study shall be presented as follows:
- Inception Report shall be submitted to the IDB four weeks after the commencement date of the contract
 - Progress reports shall be submitted to the IDB in accordance with the Consultants Schedule in Inception Report but not further apart than two (2) months
 - Draft Final Report shall be submitted to the IDB at the end of 36 weeks after the commencement date of the contract
 - Final Report shall be submitted to the IDB at the end of 48 weeks after the commencement date of contract (including 8 weeks for receipt of comments and 4 weeks to make any necessary changes following comments)

Payments

- 9.6 The payments will be done according to the following schedule:
- 10% upon signing of the contract
 - 10% upon submission of acceptance Inception Report
 - 40% total, 10% upon submission of each of the four progress reports
 - 20% upon submission of the Draft Final Report
 - 15% upon approval of the Final Report
 - 5% on completion of Workshop and Training

Expertise Required

- 9.7 The key experts required for the Consultant's team, and their minimum qualifications and experience are:
- Key Expert No. 1: Highway Engineer
 - Education: MSc. in Civil Engineering
 - Experience: 15 years of experience in road design and road construction with 10 years experience in developing countries. If proposed as Team Leader, experience must include being 'Team Leader' in at least 2 projects of a similar nature in developing countries.

- Key Expert No. 2: Rail Engineer
 - Education: MSc. in Civil Engineering
 - Experience: 15 years of experience in the design and construction of railway projects with one Project in a developing country
- Key Expert No. 3: Maritime Civil Engineer
 - Education: MSc. in Civil Engineering
 - Experience: 10 years of experience in port design, including project experience in landside and waterside infrastructure, with 5 year experience in developing countries. If proposed as Team Leader, experience must include being 'Team Leader' in at least 2 projects of a similar nature in developing countries.
- Key Expert No. 4: Structural Engineer / Bridge Engineer
 - Education: MSc. in Civil Engineering
 - Experience: 10 years experience in bridge design and bridge construction with 5 years experience in developing countries
- Key Expert No. 5: Hydraulic Engineer
 - Education: MSc. in Civil Engineering
 - Experience: 10 years experience in drainage, erosion control and hydrological evaluations with 5 years' experience in developing countries.
- Key Expert No. 6: Geotechnical Engineer
 - Education: MSc. in Civil Engineering
 - Experience: 10 years experience in geotechnical and road material evaluations with 5 years' experience in developing countries.

9.8 The language of all reports will be English and all experts shall have a good command of English. The Consultant must specify the qualifications and experience of each key expert to be assigned to the assignment. For each key expert proposed, curriculum vitae of about 4 pages should be provided detailing the relevant experience and qualifications. Members of the consultancy team must have working experience in developing countries.

9.9 The Consultant is free to define the individual duration of assignments and recommend changes to the composition of the team. All team members must be present in Guyana when conducting their assignments.

X. COORDINATION

10.1 The IDB is the executing agency for the Consultancy on behalf of the Government of Guyana. The Consultant shall report to the IDB Project Team Leader who will be the administrator of the contract. The IDB Project Team and Ministry of Public Works

will have a role entailing the reviewing and evaluation of the outputs and approving the study.

- 10.2 The MPW will facilitate the issuing of any permits required for the Consultant to carry out their duties and make available all relevant reports, documents, maps and data.

TERMS OF REFERENCE ENVIRONMENTAL AND SOCIAL STUDIES

I. BACKGROUND

- 1.1 Guyana shares its borders with two northern Brazilian states, the States of Roraima and Para; and has traditional ties with the States of Amazonas whose capital city, Manaus is the primary economic zone of northern Brazil. Notwithstanding this, currently there is little trade between these states and Guyana. Further these Brazilian states are land locked with no direct access to ocean going shipping ports, and uses Atlantic ports in Brazil via the Amazon River and Venezuela. Virtually all the import and export movements of Manaus (Amazonia) and Boa-Vista (Roraima) are containerized.
- 1.2 Over the years, the Governments of both countries have been working towards their enhancement of trade, economic and physical integration. This cooperation has so far resulted in a paved road in Roraima, Brazil up to the Takatu River border and the bridging of the Takatu River in 2009, at the border with Lethem.
- 1.3 The proposed land link will join the northern states of Brazil through the Guianas and facilitate shipping¹ access from port(s) in Guyana for imports and exports² to and from Roraima, and Amazonas and the northern Atlantic, the Caribbean, North and Central America. The development of this land transport link between the two countries and the port is also seen as critical in the fostering of this integration process for the Caribbean region as a whole which has a large trade deficit with Brazil although only importing 5%³ of its total imports from Brazil. Guyana, being a founder member of CARICOM (Caribbean common market), is in a position to further the relationship between Brazil and CARICOM.
- 1.4 It is envisioned that Guyana's integration with Brazil has the possibilities to open up foreign markets to Guyana's exports, lowering transportation costs while at the same time, increasing competitiveness through increased economies of scale, and also, increasing the flexibility of labor supply which will result in less unemployment.
- 1.5 Guyana is a nation of approximately 766,000 residing within a territory of 215,000 square kilometers. The country possess a rich natural resource base, with more than 80 % of each territory covered in largely intact lowland and sub-montane tropical forest, and dozens of moderate to large unaltered rivers extending from the southern interior to the north. The rich biodiversity of this area includes rare and endemic plant species and endangered species of wildlife.
- 1.6 The current Guyanese road to the Brazilian border in the south commonly known as the Linden – Lethem road bisects the Iwokrama International Rainforest Programme

¹ Feasibility and Preliminary Design Report (2012), SNC Lavalin: Containers from Amazonas and Roraima to an Atlantic port takes five days and six days respectively and would take two and one day(s) should a port in Guyana be used.

² Instituto Brasileiro de Geografia e Estatística (2009): The Manaus Port in 2009 handled 1,580,802 tons of import/export cargo from Amazonas and 32,008 tons from Roraima.

³ Private Sector Trade Note (2009), CARICOM Office of Trade Negotiations: CARICOM 2009 exports to Brazil were US\$196,232,000 and imports were US\$3,179,680 which represents 5% of the total exports.

(IIRFP) reserve, a Commonwealth-supported experimental forest management Project and one of only two legally protected areas in Guyana. Apart from being the site of a number of protected species under the Convention of International Trade in Endangered Species (CITES) of Wild Fauna and Flora, such as the Arapaima fish (*Arapaima gigas*) and the Striped Owl (*Asio clamator*), the Reserve and other areas contain a number of archaeological sites that such as petroglyphs that require further exploration. The improvement of the Linden – Lethem road has been the subject of intermittent discussion and study over many years.

- 1.7 A number of indigenous groups fall within the zone of influence of the Linden – Lethem road, inclusive of the Macushis, Arawaks, Akawaio, Patamona, and Wapishiana. These indigenous communities are located sporadically from Linden along the route, but more dominant in the zone between Surama and Lethem where the communities of Fairview, Surama, Massara, Wowetta, Toka, and Annai are found. The road bisects three of these communities, i.e., Annai, Massara, and Toka with a total population of just over 1,000 people. These communities have depended on the forests either side of the proposed road to carry out their traditional livelihood activities of hunting, fishing and trapping. Additionally, streams in the vicinity of the road have been used as for domestic and drinking purposes by communities and road users alike.
- 1.8 The studies for the Guyana – Brazil Land Transport Link and Deep Water Port Project will examine various land transport modality and alignment options available for the different choices of port sites in the estuaries of the three Essequibo, Demerara or Berbice rivers or Guyana's Atlantic coast. Once this Project is implemented there will be a significant increase in the accessibility of the country's hinterland for development and economic activity.

II. DESCRIPTION OF CURRENT ROAD CORRIDOR AND PORT

- 2.1 The 453.7 km existing road between Linden and Lethem is almost entirely unpaved and forms part of a 558 km potential through-route from the Brazilian border at Lethem to Georgetown.
- 2.2 The Georgetown-Linden section (105 km) is a paved road with two lanes except for a short segment with 4 lanes on the outskirts of Georgetown, which is in good condition. From the Demerara Harbour Bridge to the Soesdyke junction (27 km), the road is a single carriageway asphalt pavement, approximately 6m wide. The land use is mainly urban to peri-urban with typical ribbon development, less than a kilometre deep. On both sides of the road there is a mixture of residential, religious, commercial and industrial activities. In places, the road reserve is less than 2 metres as a result of encroachment from small shops and other premises.
- 2.3 From the Soesdyke junction to the Linden junction (74 km) the road is a single carriageway paved road, approximately 7m wide. From just before the Soesdyke junction there is a rapid transition from peri-urban to rural land use. This comprises intermittent patches of subsistence farming in mixed degraded forest on relatively infertile soil, which continues to just before Linden where peri-urban land use predominates for approximately 3 km. Crops include cassava, mango and papaya trees. In addition, small-medium scale sand mining is carried out on both sides of the

road for about 20 km from the Soesdyke junction. In addition, charcoal burning remains a major form of occupation for occupants along the Linden-Soesdyke highway.

- 2.4 The Linden-Lethem section extends from the road junction just west of the Wismar Bridge (Linden) at the northern end to Lethem at the southern end, at the point where the access road to the new Takutu Bridge and the Brazilian border begins. The road can be sub-divided as follows:

Table 1

Section	Length (km)	Surface Type
Linden - Mabura Hill	2.58	DBST
Linden - Mabura Hill	122.45	Unpaved
	125.03	
Mabura Hill – Kurupukari	107.64	Unpaved
Kurupukari – Annai	102.26	Unpaved
Annai – Lethem	118.80	Unpaved
Total Length	453.72	

- 2.5 The following road condition descriptions are based on observations done on the Linden-Lethem road during the pre-feasibility study in March 2008. The section from Linden to Mabura Hill begins with a failed DBST surfaced road (9.6 metre width) and continues as an unpaved laterite surfaced road with an average formation width of 15 metres. The condition of this unpaved section is two fold. The riding quality for approximately 90 km is very poor with average speeds of 35 km/hr while the remaining 32 km is in good condition with average travel speeds of 60 km/hr.
- 2.6 The section from Mabura Hill to Kurupukari is an unpaved laterite and white sand/sand clay surfaced road with an average formation width of 6 metres. The first 25.75 km is in relatively good condition with average travel speeds of 60 km/hr. The remaining 82.4 km is in poor condition, inundated with large potholes, with average travel speeds of 30 km/hr. The alignment is poor owing to numerous sharp bends and blind corners. This section of road is a forestry type road which has replaced the engineered road because of the collapse of a bridge on the engineered road a few years ago. At Mabura Hill (226 km) the road passes through the Demerara Timber Limited sawmill complex and through the its timber concession for the next 109 km until just before Kurupukari.
- 2.7 At Kurupukari, there is a toll ferry which crosses the Essequibo River and operates during day light hours and upon request. Immediately south of the ferry crossing one enters the Iwokrama International Centre for Rain Forest Conservation and Development, one of two protected areas in the country, and the road passes through it for some 75 km. At km 418 there is a marked transition from forest to open savannah, namely the Rupununi Savannah. The Kurupukari to Annai section is an unpaved laterite surfaced road with an average formation width of 9.3 metres. However this width is reduced to 6.8 metres for much of the length due to encroaching vegetation. The surface is in relatively good condition with average travel speeds of 65 km/hr.
- 2.8 The Annai to Lethem section is an unpaved laterite surfaced road in fair to good condition, permitting average travel speeds of 50 km/hr. This section has however

been subject to seasonal flooding. There are a number of sharp bends and blind corners around the hills which impair site distance over about 16 km of the section. Some 20 km before Lethem the topography changes from flat to gently rolling hills with periodic occurrences of natural laterite on the crest of the hills. The land use for the last 2.5 km before entering Lethem is peri-urban and the survey of the road ended at km 553 in Lethem.

- 2.9 There are 51 bridges and 135 culverts on the Linden-Lethem road, distributed as follows:

Table 2

Section	No. of bridges	No. of culverts
Linden - Mabura Hill	1	5
Mabura Hill – Kurupukari	14	13
Kurupukari – Annai	22	19
Annai – Lethem	14	98
Totals	51	135

The bridges along the Linden-Lethem road are principally of timber construction and are in varying degrees of disrepair, as are the culverts.

- 2.10 The Port of Georgetown (PTG) supports a complex mixture of activity and is not simply a place where ships and cargo are handled. The extent of the activity that the port supports and generates is directly related to the level or volume of business it handles. It is worthwhile noting from the point of view of identifying the expected economic benefits from the improvement of the road and subsequent use by Brazilian business can generate, the PTG performs five basic functions⁴:

- A **nodal** function: a seaport is essentially a nodal point in logistics networks, a link in a chain where cargo flow change mode of transport. To fulfil this nodal function, a seaport must have adequate access (maritime and landside) and port-internal infrastructure.
- A **business location** function: industrial companies, logistic service providers and cargo handling companies settle in port areas to produce, add value to, process, store and handle goods. Managing sites for these businesses forms a second port function.
- A **nautical** function: the third function concerns the performance of public nautical tasks to ensure an efficient, safe, clean and secure handling of ships
- A **community** function: a seaport does not exist in isolation from the community (city, region, country) in which it is embedded. The fourth function of a seaport is to add value to that wider community. Ports also take part in the territorial development of Member States and the EU.
- Ports often also have a **borderline** function, with consequent implications regarding customs, security, health etc.

⁴ ESPO, 2006, Recommendations for the consultation process on European seaport policy, <http://www.espo.be/downloads/archive/b6b502a5-e118-47fa-a7f5-047f7ae8b709.pdf>

- 2.11 In a 1998 Study⁵ it was estimated that the size of the vessels needed to meet the shipping service needs of the Brazilian traffic will require a number of major changes to be undertaken to improve port access by sea and by land, development of berths, storage areas, security services, customs facilities, road and parking access, etc. The size of the ships that would need to be accommodated to handle the expected Brazilian trade would include the following:
- Regional feeder services operating within the Caribbean Basin using small geared ships ranging from between 100-300 TEUs, including non-containerized ships serving volume ports
 - The direct services connecting the Caribbean Basin with ports on the South and East Coast USA including for example: the ports of Houston, Florida Everglades, and Baltimore. Ships on this trade would include multi-purpose, geared with an equivalent capacity of about 350 TEU and depending on the demand and port and terminal access constraints up to 600 TEUs
 - Europe and Far East Direct Service are using relatively large geared and gearless ships of about 1,000 TEUs

III. TIMELINE OF KEY EVENTS IN ROAD'S HISTORY

- 3.1 There has been a long history of discussions, agreements, studies and bilateral initiatives relating to the improvement of the road. However the most pertinent are summarized below.
- 3.2 1976-78: The Ministry of Works and Hydraulics constructed a gravel road between Wismar (Linden) and Mabura Hill.
- 3.3 1980s: Demerara Woods Ltd. undertook to open up a 60 km primary logging trail from Mabura Hill towards Kurupukari.
- 3.4 1981: The Brazilian firm Gutierrez / PRODEC carried out an initial feasibility study of the road with economic, financial and technical proposals for its completion. Although the Brazilian Government indicated that the study provided the basis for a financing proposal within three months, no formal proposals were ever received.
- 3.5 1981-82: Home Oil upgraded the 55 km section of the road north from Lethem. This was later further upgraded as far as Point Ranch by the Brazilian company Paranapanema.
- 3.6 1987 (November): The Ministry of Communications and Works published a Project Dossier for the Guyana – Brazil road.
- 3.7 1988: Formation of the Trail to Rupununi Association, which had as its aim the establishment of a fair-weather trail from Mabura Hill to Lethem to provide overland access to the Rupununi. Some progress was made in clearing a trail and re-establishing bridges.

⁵ IADB, 1998, Examination of Major Alternatives for the Establishment of a Deep-Water Port in Guyana, Guyana.

- 3.8 1989: A technical and economic feasibility study for upgrading the road was carried out by TecnEcon for the Secretariat of the Caribbean Community with financing from the Commission of the European Communities.
- 3.9 1989 (November): The Brazilian firm Paranapanema was awarded the contract for Phase 1 which involved:
- survey and design from Lethem to Kurupukari (224 km)
 - upgrading the Lethem-Annai section (125 km)
 - constructing the Annai-Kurupukari section (125 km)
 - design and supply of river crossing facilities at Kurupukari on the Essequibo River

Phase 1 was completed in August 1991.

- 3.10 1994 (October – December): An environmental impact assessment of the road completion proposals was commissioned by the Ministry of Public Works, Communications and Regional Development. It was undertaken by Environmental Resources Management with financial assistance from the World Bank and completed in April 1995. The study evaluated the direct and indirect environmental and social impacts of construction and operation of 3 improvement options (forest road, all-weather gravel road and paved road) on the existing alignment, and the possible realignment of one section between Mabura Hill and Kurupukari (101 km).
- 3.11 2000: A detailed technical and economic feasibility study financed by the European Union was undertaken by ADK – Alexander Gibb. This study considered 3 improvement options:
- current design with minimum earthworks
 - 10 m all-weather gravel road
 - 7 m paved road

Detailed estimates were made of potential traffic generation and developmental benefits in the Rupununi and potential Brazilian traffic generation and diversion. The study also considered that Guyana's port facilities did not pose a problem for potential Brazilian container traffic using the road.

- 3.12 2002 (May): Mekdeci Machinery and Construction Company (MMCC) was awarded the contract to operate the Kurupukari Ferry over the Essequibo River and charge tolls. Proceeds from toll revenue were supposed to contribute to road maintenance funds for the MMCC sections, but low traffic levels limited this contribution.
- 3.13 2005 (September): A task force appointed by the Prime Minister reviewed the arrangements for the continued rehabilitation and maintenance of the MMCC contracted sections between Kurupukari and Lethem, some of which had suffered severe flooding following the exceptional rainfall experienced at the time. Road conditions in the MMCC sections were found to be fair to satisfactory, but the "Hunt Oil" sections between Lethem and Toka, which were prone to flooding, were deemed

to require rehabilitation. A total of 39 bridges between Kurupukari and Lethem were found to require rehabilitation.

- 3.14 2006: The Guyana Transport Sector Study, using data from the 2000 ADK / Gibb feasibility study, evaluated three improvement options:
- minimum earthworks and widening to an 8m gravel road
 - realignment and widening to 10m gravel standard, with concrete bridges
 - realignment and widening to 14m and paving, with concrete bridges
- None of these was found to be economically feasible.
- 3.15 2008: A Pre-Feasibility Study of the Georgetown-Lethem road was conducted by international consultants Mott MacDonald Limited in association with Cemco Inc. of Guyana. Four alternatives for improving the Linden-Lethem road were considered, and the improvement costs and annual maintenance costs for each were determined. An economic appraisal was carried out for the 4 improvement alternatives with an appraisal period of 2013-2032. The results yielded an economic internal rate of return (EIRR) of 15.2% for Alternative 3 (improvement to paved road (DBST) standard with replacement of the existing timber bridges with steel bridges), when the road was analysed as a whole with the inclusion of Brazilian diverted traffic. The potential inclusion of a bridge over the Essequibo River at Kurupukari was not considered in the pre-feasibility study. However, highly provisional estimates suggest that such an inclusion would result in an EIRR of 13%-14% for Alternative 3.
- 3.16 2011: A Feasibility Study of the Georgetown-Lethem road was conducted by international consultants SNC Lavalin. The study was concluded without much advancement in the engineering and economic aspects of the Project above that of the Pre-feasibility Study. There were some contribution to the Environmental and Social Impact Assessment (ESIA) and an Indigenous Peoples Plan was prepared.
- 3.17 There has been discussion on the possibility of a railway in place of a road between Linden and Lethem. However there has not been any study examining this alternative land transport and its feasibility.
- 3.18 Over the years there have been a number of studies carried out and documents / guidelines prepared that would be of particular interest to the environmental and social impact study aspect of this Project and should be consulted. These include the following:
- The National Development Strategy (2001 – 2010)
 - The European Union Funded (1989) Completion and Upgrading of the Road Link Between Guyana and Brazil
 - The World Bank Funded (1995) Environmental and Social Impact Assessment: Linden – Lethem Road – Guyana
 - The European Union Funded (2000) Study for the Upgrading and Completion of the Guyana-Brazil Road
 - The European Union Funded (2006) Transport Sector Strategy Study

- The National Competitiveness Strategy of 2006
- The Inter-American Development Bank Funded (2008) Pre-Investment Study – Georgetown-Lethem Road
- The USAID Funded (2003) Study on the Biodiversity and Tropical Forest Conservation, Protection and Management in Guyana
- The Iwokrama Road Corridor Management Plan (2002)
- The Inter-American Development Bank (2006) Environment and Safeguards Compliance Policy (OP 703)
- The Inter-American Development Bank (2007) Disaster Risk Management Policy (OP 704)
- The Inter-American Development Bank (2006) Operational Policy on Indigenous Peoples

IV. PORT STUDIES

- 4.1 The subject of a deep water port in Guyana has been studied in two separate instances as shown below:
- 1998 Ashar and Woodbury Examination of Major Alternatives for the establishment of a Deep Water Port in Guyana funded by the Inter-American Development Bank
 - 2010 Indian Ministry of Shipping, Report of Study Team on the Construction of a Deep Water Port in the Berbice River of Guyana
- 4.2 The Ashar and Woodlbury Report examined a total of eight sites lone in the Essequibo River, five in the Demerara River and two in the Berbice River. The demand used in the study was 20,000 TEUs for a low scenario and 40,000 TEUs for a high scenario. The Demerara River sites were most favorable for both demand scenarios with a site south of the Georgetown and below the harbor bridge. The report cautions that because of the limited scope of the budget of the study, some critical inputs were based on preliminary estimates and assumptions. It further stated that, the inputs should be further investigated and substantiated if an action based on the report recommendations was to be undertaken.
- 4.3 The Indian Ministry of Shipping Report focused on the port in the Berbice River without considering alternatives in Demerara and Berbice River. The demand analysis prepared to justify the Project applied the Projected GPG growth rate to the current container traffic in the Georgetown port while making Projections for traffic from Brazil and Suriname. None of the Projections were done in a detailed manner.

V. ON-GOING STUDIES AND COORDINATION

- 5.1 Currently, there is an on-going study funded by the Inter-American Development Bank (IDB or Bank) titled Biodiversity and Ecosystem Services Assessment for the Georgetown Lethem Road (GY-T1081) and is being undertaken by Conservation International. The consultant is expected to incorporate the outputs of that study into

the assessments under this Terms of Reference (TOR). Coordination between the two consultants would be facilitated by the Ministry of Public Works and the IDB.

- 5.2 The specific objectives of the Biodiversity and Ecosystem Services Assessment are (i) produce a baseline study of the biodiversity and key ecosystem services in the area of influence of the Georgetown Lethem Road (GLR); (ii) assess the risks and potential direct, indirect and cumulative impacts on biodiversity and key ecosystems services that may result directly or indirectly from upgrading and operating of the GLR; (iii) demonstrate the use of analytical models and approaches for integrated assessments of the impacts in biodiversity and ecosystems services. (iv) identify locations along the road corridor that are critical areas for biodiversity and ecosystems and propose general development solutions; (v) provide recommendations to the Government of Guyana and the Bank based on the results of (i), (ii), (iii), (iv) and (v) on how to best manage the risks and potential impacts on biodiversity and ecosystem services resulting from the upgrading and operation of the GLT including guidance for the development of risk impact mitigation strategies.
- 5.3 It is intended that this study will be based on an evaluation of existing data, complemented by field assessments to fill data gaps and will focus on areas that will be impacted by upgrading and operating the GLR.

VI. SCOPE OF CONSULTANCY

- 6.1 The scope of this consultancy includes the preparation of a Strategic Environmental and Social Assessment (SESA), a Country Environmental Assessment (CEA) and an ESIA under an umbrella program. Stakeholder consultation would be a cross cutting task for the three study areas. The consultant is required to produce three independent reports for the SESA, CEA and ESIA. The first activity would be a scoping exercise which would finalise the TORs for the SESA, CEA and ESIA.

VII. PROJECT SCOPING

- 7.1 The objective of the Scoping exercise is to identifying the environmental and social issues and impacts of undertaking the land transport Project linking northern Brazil with a port on Guyana's coast. The results of the scoping exercise will provide the inputs for the finalisation of the draft TORs for a SESA, a CEA and an ESIA to be executed under an umbrella program.
- 7.2 The activities of the Scoping are as follows:
- Review all relevant background information including pertinent engineering, social and environmental data from external sources and previous studies of the Project area.
 - Conduct stakeholders' analysis and mapping to identify both affected parties, Project beneficiaries and the institutions that could influence the Project outcome. This includes but is not limited to MPW staff, other government ministries and agencies, local government, indigenous peoples' groups and communities, private sector, shipping industry, contractors, "traditional" decision making bodies, NGOs, the Iwokrama Rainforest Reserve as well as those that live alongside the road or in the proposed location for the Port e.g.,

loggers associations, local communities who may be affected by road changes and the port in Georgetown, and fishers.

- Identify proposed Project alternatives and activities that would be undertaken during the implementation and operation of each alternative should it be selected.
- Define the issues and potential positive and negative social and environmental impacts (direct, indirect and cumulative) of the proposed activities for each alternative.
- Identify areas that are critical areas for biodiversity and ecosystems as well as protected and/or conservation areas.
- Identify baseline surveys and investigations which should be conducted.
- Conduct an impact analysis that will include methods for quantifying impacts, and description of impacts according to their character, condition, period, scope.
- Liaison and coordinate with the Environmental Protection Agency, the Ministry of Amerindian Affairs, the Ministry of Natural Resources and other agencies in Guyana.
- Conduct qualitative discussions/focus group discussions with communities which would be directly and indirectly affected by the Project.
- Lessons learnt from Brazil could allow for better management of the social and environmental impacts on the Guyana's side of the border.
- Finalise the draft TORs for the SESA, a CEA and an ESIA.

VIII. STUDY 1: STRATEGIC ENVIRONMENTAL AND SOCIAL ASSESSMENT

A. Objective

- 8.1 The objective of this consultancy is to conduct a SESA for the Guyana – Brazil Land Transport Link and Deep Water Port. The SESA will identify within the context of the established dialogue between the Guyana and the Bank, the opportunities for synergies between good social and environmental management and economic development, as well as socio-environmental risks that can jeopardize economic and/or social development particularly those associated with this transport Project. Based on a cross-sector dialogue with government, private sector, local communities and other relevant stakeholders, the consultants will produce timely, practical and relevant analyses, including indicators, baseline data, and existing data deficiencies, to assist the country and the Bank in promoting socio-environmental mainstreaming and strategically targeted improvements in key areas of socio-environmental management related to the Project.

B. Activities for the SESA

- 8.2 The preparation of the SESA for Guyana – Brazil Land Transport Link and Deep Water Port will comprise of the following activities:

- i. Information gathering to compile all available studies, data etc.
- ii. State of the Social and Environment Assessment (potentialities, issues, pressures, state response to key environmental issues, need for action)
- iii. Institutional and Policy Assessment (overview of the institutional, regulatory and regulatory framework and assessment of public participation processes including NGO participation)
- iv. Assessment of the Proposed Project (country priorities, issues that arise at strategic level, previous and ongoing feasibility and environmental studies being prepared applicable to the Project)
- v. Analysis of Cross-Cutting Issues (link between the Project and key sectors of socio-economic development and the environment)
- vi. Identification and Analysis of Opportunities, Assets and Risks based on the previous analyses

Information Gathering

8.3 In order to have access to and analyze all available relevant environmental and social information and data, the Consultant team will rely on the following working method:

- i. Existing studies and data: The Consultant will compile and review recent studies, data and reports available on the environment and related social situation in Guyana for the Project, including reports on environmental issues that have been prepared by local environmental agencies, other relevant Ministries, NGOs, the Bank, other multilateral institutions, donors, and academia, including the university communities. A complete list of references is to be included in the SESA report.
- ii. Knowledge and experience of local experts: The Consultant will hire the services or consult with local experts to provide insights into specific issues, and easy access to contacts in Guyana to facilitate logistical support.
- iii. Information gaps: Most of the information used to complete the SESA activities will be from existing literature, data and documentation. Limited fieldwork in priority areas may be warranted and undertaken and agreed with the IDB's Project team. Fieldwork may be necessary to obtain information regarding the direct and indirect impacts of road and other infrastructure development on nearby ecosystem and socio-cultural environments including risks to indigenous peoples. Initial efforts should rely on consultations with stakeholder groups to collect and assess recent fieldwork that may be unpublished or unreported. If it is determined that baseline or original data collection tasks will be required for any impact variable or factor then these activities should first be confirmed with the IDB Project coordinator and IDB country staff. Critical information gaps will be identified and included as an element to be addressed in the work plans developed as part of the SESA activities. Data proxies, qualitative information and interviews can be used to compensate for the data gaps.
- iv. Participatory Stakeholder Consultations: For all tasks and phases of the SESA, the Consultant will identify and selectively interview stakeholders

from key groups, institutions or regions, ensuring that a thorough cross-section of stakeholder input is represented in the data input, analysis and findings produced by the SESA. Stakeholder representation should at least include, but not necessarily be limited to the institutions identified in Table 1. The consultant will include a list of stakeholders and institutions that participated in the SESA activities and indicate the nature of their participation (interview, workshop, advisory team, etc.). Stakeholders will be engaged throughout the SESA process to help develop the framework for the initial work plan; identify the principal infrastructure development and activities being proposed; establish and prioritize the impacts to social, cultural, economic, institutional and ecological conditions posed by these development activities; identify qualitative and quantitative information that the consulting team can use to analyze these issues; and evaluate the technical, social, and institutional feasibility for achieving the recommendations. The Consultant will also create opportunities through workshops or other advisory groups or other appropriate formats for selected stakeholders to participate transparently as provided in the Bank's Environment and Safeguards Policy (ESP).

Table 1: Recommended Stakeholder Representation in SESA Process

Government	Ministry of Amerindian Affairs, EPA, Ministry of Finance, Ministry of Local Government, Guyana Forestry Commission, Ministry of Public Works, Guyana Geology and Mines Commission, Ministry of Agriculture, Guyana Energy Agency, Ministry of Fisheries, Crops and Livestock, Ministry of Tourism, Industry and Commerce.
NGOs	Conservation International, World Wildlife Fund, Guyana Marine Turtle Conservation Society, and Amerindians Peoples Association.
Other	Iwokrama, University of Guyana, PAHO, UNDP, World Bank, Canadian International Development Agency (CIDA), European Community, USAID, DFID, UNEP, and IDB Country Office.

- 8.4 The Consultant will request input from the Bank, the Government and other key stakeholders in compiling the final list of stakeholders and will continue to update the list during the execution of the SESA activities and send updates to the Bank. Stakeholders will be identified and engaged selectively in all phases of the SEEA reports preparation. Special attention will be given to analyzing the impacts and risks that may affect women, indigenous peoples, disadvantaged groups and the poor. The consultant will also ensure that the regulated community and other private entities are fully engaged in this process. The final list of stakeholders consulted and engaged in the SESA process will be included as an Annex to each document prepared.
- 8.5 Indicators and Baseline Data: Based on the results of the diagnostic and availability of data, the consultant in consultation with Bank, will select a number of indicators (both quantitative and qualitative) to characterize the baseline conditions with respect to the state of the environment, predicted impacts from infrastructure Project, and environmental governance and management as a whole and in key sectors (or environmental management units if applicable). These indicators will be reviewed

and validated by Bank staff prior to advancing the analyses. This is consistent with and will feed into the Bank's policy mandate to supervise the implementation of its environmental strategic priorities based on relevant and available key baseline indicators.

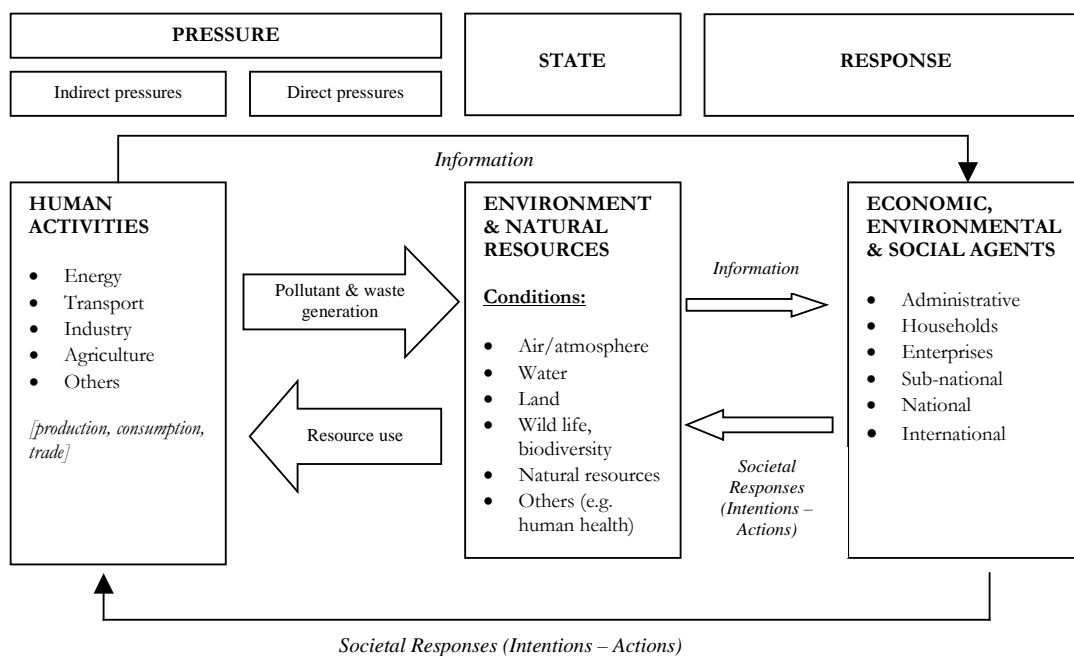
- 8.6 The consultant will also assist the Bank in incorporating selected priority verifiable indicators, which will be agreed with the country in order to track Project-level environmental performance against the relevant environmental baseline. The Bank's Environmental and Safeguard Policy requires that information be periodically collected and updated in subsequent programming documents or country strategies, and that particular attention be given to tracking performance on internationally agreed targets and goals⁶.
- 8.7 The Consultant will also assess the limitations of the proposed indicators as one possible tool for evaluation. Specifically, the Consultant will evaluate the degree to which: (i) results from indicators can be easily interpreted and validated by stakeholders; (ii) results from indicator assessment and monitoring can be directly linked to investments in the environmental sector and existing or proposed activities; and (iii) sufficient baseline data exist to allow for use of the indicators as evaluation and monitoring tools. In selecting the indicators the consultant team will favor those that most closely match Bank policy and strategic objectives and for which data are available and routinely collected for follow-up. However, the team will also point out data gaps and suggest future data collection and monitoring for critical sectors, issues or areas, especially those included in the Bank program for the country. The consultant team may also elect to apply other analytical tools to enhance or expand the analyses, such as a Threat Reduction Assessment or similar tools to place the environmental, social, economic, and policy context in Guyana that demonstrates the nature and magnitude of key environmental issues.

C. State of the Environment Assessment

- 8.7 This section will present an overview of the environmental and ecological context and natural resource assets in Guyana and should follow the issue-pressure-state-response (PSR) framework.
- 8.8 The figure below illustrates how society, through development activities and use of natural resources, exerts pressures on the environment. These include indirect pressures, such as activities and trends of environmental significance, which are considered driving forces, as well as proximate or direct pressures on the environment, such as resource consumption and use and discharge of pollutants. Such pressures, in turn, affect the condition or state of the environment. Information about changes to the state of the environment and associated environmental pressures may be conveyed to society, which may then respond individually or collectively with policy, programme, stewardship, or behavioural measures. Thus, the PSR model uses a holistic approach linking causes, effects, and social responses.

⁶ ESP, Directives A1 and A5.

Figure 1: The Pressure – State – Response (PSR) Model



8.9 The State of the Environment analysis should include an assessment of physical conditions, natural resource availability and dependency, economic trends and social-cultural conditions, population trends, environmental awareness and politics. The assessment should summarize the following list of issues.

- i. Biological conditions, biodiversity, ecology and nature conservation and trends.
- ii. Critically contaminated areas, and principal sources of contamination.
- iii. Air quality - sources of contamination, trends, and potential contributions or impacts to climate change factors (pesticide applications, burning of sugarcane for harvesting, forest clearing for agriculture or mining, etc).
- iv. Mining and other extractive non-renewable resource extraction practices, including existing and proposed large and small-scale operations, and problems with mercury, cyanide, and suspended solids.
- v. Quality and quantity of surface and ground water, and estuary and near shore marine environments, fisheries and wetlands including cross-boundary issues.
- vi. Land resources and terrestrial ecosystems, including actual and potential land use; principal agricultural resources (crops); forest resources, management and harvest practices including deforestation rates, patterns and areas, and existing and proposed logging operations; wildlife resources, including threatened and endangered species and risks to genetic resources; soil erosion rates, trends and areas; urbanization issues.

- vii. Natural disaster exposure: floods, drought, and extreme weather events. Particular attention should be given to elaborating possible climate change scenarios and predicting the magnitude of possible impacts from these changes on the natural, social and economic environments.
- viii. Energy production and distribution: development and mitigation of impacts from hydropower programs; alternative fuels and energy sources.
- ix. Infrastructure development: impacts from road and other transportation improvements; telecommunications; water supply and distribution systems, wastewater management, solid waste management and waste recycling.
- x. Development and safeguarding of biotechnologies and genetic resources.
- xi. Socio-economic conditions and trends (i.e. income level and distribution, education and literacy, human health, economic links to sector analyses, etc.)
- xii. Key environmental and sustainability indicators with a focus on priority issues identified by any prior environmental analyses.
- xiii. Inclusion and fulfillment of responsibilities to indigenous populations and disadvantaged groups.

D. Institutional and Policy Assessment

8.10 The SESA reports for Guyana will include an analysis of the effective state of environmental and natural resource governance in each country (e.g., level of institutional development, civil society participation, access to information, adequacy of the legal and policy framework, and public sector capacity for environmental and natural resource management). The SESA reports should use this summary of Guyana social and institutional assets to determine existing capacity and identify strengthening opportunities that can help avoid and mitigate impacts from this infrastructure development Project and ensure the sustainable management of environmental resources. This analysis should particularly assess the following factors:⁷

- i. Efficacy of existing and proposed policy and action plans; administrative and legal context for environmental protection, rights of indigenous peoples, and other rural communities, and international agreements regarding environmental issues.
- ii. Legislation - existence and efficacy of laws, policies, standards and mandates to facilitate the planning, administration, and management of infrastructure development and the monitoring and mitigation of changes in environmental conditions and natural resources, including public participation, approach to international environmental conventions, natural resource concessions and regulations, occupational health and safety.
- iii. Institutional and organizational capacity and effectiveness assessment - framework, structure and organization, roles of Government, NGOs, and

⁷ ESP, Directive A.1.

private sector, formal structures and procedures for public participation, and financial and human resources available to relevant governmental agencies, and environmental NGOS and their strengths and weaknesses.

- iv. Compliance and enforcement of existing norms including international obligations.
 - v. Methodology and processes for priority setting and cross-sector coordination.
 - vi. Capacity for ESIA approval and enforcement.
 - vii. Environmental public expenditure review.
 - viii. Indicators for measuring public sector capacity.
 - ix. Data gaps to support environmental planning, decision-making, conflict mitigation, negotiations and resource management.
 - x. Institutional, legislative or policy areas in need of reform and improvement.
- 8.11 Some guiding overarching questions and concerns that should be addressed in this analysis include: (i) existence of legislation, government agencies and institutions with the capacity to plan, implement, monitor, evaluate and mitigate environmental problems related to infrastructure development projects; (ii) existing national strategies to support sustainable infrastructure development; (iii) operational plans of action to facilitate the sustainable use of different natural resources or ecosystems and the viability of these plans within the context of current financial and institutional capacity; (iv) actions taken to implement international environment-related conventions/protocols, and constraints on these actions that could result from transport and other infrastructure improvement and development activities; (v) institutional actions being implemented to increase public awareness and understanding of these issues; institutional strengthening and capacity development needs in environment-related areas; systems in place to promote and enforce compliance with environmental and natural resource regulations; training, awareness, dissemination, and inspection penalty and incentive programs in place; (vi) role and impact of the judicial system in upholding environmental and natural resource related rights and obligations; (vii) mechanisms in place to protect the environmental and natural resource rights of minorities, and (viii) indigenous peoples, rural populations and the poor.

E. Assessment of Proposed Project

- 8.12 This part of the dialogue should use the information obtained through consultation and at least one initial workshop to establish a visual and written perspective on the geographic location of proposed infrastructure development for the Guyana – Brazil Land Transport Link and Deep Water Port Project. The outcome from this assessment should include a clear delineation of the Project status. Assessment areas will include country priorities, issues that arise at strategic level, previous and ongoing feasibility and environmental studies being prepared applicable to the Project. An immediate priority will be to evaluate and prioritize the potential impacts from the Project and spin off initiatives.

- 8.13 The Strategic Social and Environmental Assessment (SESA) is conceived as an instrument to analyze upfront the potential risks and opportunities for environmental and socio-cultural management of the Project alternatives. The SESA will be used as the framework from which to develop an Action Plan to deal with strategic impacts or issues identified in order to guide Guyana towards Project approach that is environmentally and socio-culturally sustainable.
- 8.14 Basically, the SESA would ensure:
- i. Ensure that the major environmental, socio-cultural, economic and institutional risks and opportunities of the Project are identified upfront. This identification also includes direct, indirect and cumulative impacts related to the Project initiative and potential derive Projects.
 - ii. Display in GIS maps the environmental, socio-cultural and other relevant information prepared for the Project's area of influence in order to facilitate and strengthen monitoring and decision-making within programs pertaining to these areas.
 - iii. Engage the public institutions, NGOs, civil society organizations, indigenous communities and other relevant stakeholders that can derive benefits or be affected by the development initiatives in the assessment and analysis phases of the environmental, institutional and socio-cultural risks and opportunities of the proposed alternatives.
 - iv. Generate agreement among the stakeholders as to the scope of the environmental, institutional and socio-cultural management plans that should be developed to ensure the sustainable implementation of the Project.
 - v. Promote coordination, at least at an initial stage, between the relevant institutions of Guyana.
 - vi. Ensure that the results of the SESA are thoroughly disclosed among the affected populations and beneficiaries of the proposed initiatives.
- 8.15 The preparation of the SESA will involve: (i) identification and analysis of the Project initiatives being devised (ii) assessment of the state of the socio-cultural and biophysical environment in related to these development initiatives as described previously; (iii) completion of a screening, scoping and impact analysis; (iv) completion of a representative public consultation of the potential affected population; (v) identification of the potential environmental and social impacts, including impacts on biodiversity, indigenous populations and fragile ecosystems, and institutional constraints, including planning and decision making limitations; and (vi) design and prioritization of the specific measures necessary to mitigate the identified social and environmental impacts and the respective monitoring plan and baseline. The consultant is expected to incorporate the SESA findings in an action plan that includes management alternatives and a monitoring plan with baseline and mitigation measures to achieve program's sustainability.

F. Analysis of Cross-Cutting Issues

- 8.16 This analysis concerns the economy's and society's use of and impact on natural resources, environmental goods and environmental services in Guyana. It complements the previous analyses in highlighting the connections between socio-economic development and environmental management.
- 8.17 To achieve this succinct cross-sector analysis the consultant team will provide concise graphic and written assessments of policies, programs, subsidies, and strategies to address economic development, poverty, health and livelihoods, equitable access and distribution of environmental resources, population growth, migration and conflict, with particular attention to the following factors:
- i. Identification and analysis of key macroeconomic or sector policies and reforms that may have significant environmental and natural resources implications (e.g., energy and water pricing issues; privatization schemes affecting natural resources or environmental services; trade liberalization; property rights; changes in explicit and implicit subsidies to reflect resource scarcity or risks; and improved use of market instruments to protect the environment).
 - ii. Identification and analysis of subsidies relating to potentially environmentally damaging products, including, but not limited to such as subsidies as: the production and consumption of energy, notably motor fuels, coal, and electricity; the production and consumption of agricultural chemicals, notably fertilizers and pesticides; the exploitation or harvesting of natural resources, in particular, timber.
 - iii. Identification of excessively generous production quotas or poor concession an allocation management in the fisheries, mining and forest sectors.
 - iv. Identification and analysis of viable policies that can be used to reduce the wasteful use of resources emissions such as charging fees for emissions, reductions in quotas or taxes on the consumption of raw materials.
 - v. Identification and analysis of governance issues (decentralization, fiscal austerity and environmental expenditures, removal of corruption, better transparency and accountability).
 - vi. Identification of opportunities to break the vicious cycle of environmental degradation and poverty.

G. Identification and Analysis of Opportunities and Risks

- 8.18 The analysis should categorize potential environmental impacts and mitigation responses by resource and institutional sector. The State-pressure-response framework should be used to include an assessment of the following factors: (i) sector characteristics, technologies and trends; (ii) environmental and natural resources issues; (iii) regulatory and institutional framework; (iv) cross-sector linkages; and (v) environmental and related social mandates of Bank policies; and strategies for the sector.

- 8.19 The assessment of biophysical, social and institutional assets and potential impacts to these assets by sector can be used to determine opportunities and risks related to the Bank's engagement in environmental management in Guyana. In particular, the Consultant will identify opportunities for synergies between good environmental management and economic development in its wide representation with infrastructure development, such as improvements in the planning and implementation of infrastructure improvements, and monitoring and mitigation of impacts from these activities. At the same time, the Consultant will determine social and environmental risks that can jeopardize the implementation of these development initiatives.
- 8.20 The Consultant will support findings with succinct information on the cross-sector context of environmental risk, the potential impact of proposed Project on ecosystems, and an assessment of expenditures on environmental risks and management needs. The Consultant will also categorize how opportunities and risks can, respectively, be increased or reduced; and actions that can be implemented to take advantage of these opportunities or reduce risks. Particular attention will be given to irreversible and cumulative impacts, as well as conflicting demands between key stakeholder groups over resource use and management. The analysis should also examine the existing capability of each country, mainly Guyana, to address risks and opportunities and refer to the assessment of the environmental governance framework.
- 8.21 Examples of the risks, threats and constraints that the team may address include: (i) increase in water quality degradation and contamination due to unregulated discharges and lack of treatment facilities; (ii) degradation or loss of forest resources due to unregulated harvests; (iii) loss of biodiversity resources due to increased, but unregulated access to hunting and harvest sites; (iv) resource use and allocation conflicts; (v) overlapping jurisdictions creating conflicting management or mitigation mandates; and (vi) lost opportunities for sustainable resource development due to uncertain resource use rights, incomplete or unreliable data, lack of planning capacity, or other factors.
- 8.22 Examples of possible opportunities could include: (i) adding environmental education to basic education programs; (ii) conducting public awareness programs that cut across sectors, strategic objectives, and customer groups; (iii) incorporating environmental resource valuation in development planning for economic growth; (iv) combining environmental conservation work with civil society development through community-based natural resource programs; (v) developing conflict prevention or mitigation activities for resource access issues between communities or tribes; (vi) adding environmental health issues to preventive health programs; (vii) identifying environmentally friendly technologies for energy sector programs; (viii) adding natural resource management and conservation practices to commercial export agriculture programs; (ix) addressing environmental resource issues in food security programs; (x) addressing environmental governance in general governance reform programs; and (xi) positive linkages between environmental changes and livelihoods of vulnerable populations.
- 8.23 This summary of risks, threats and opportunities will form the foundation for the Action Plan to be developed in the SESA documents.

- 8.24 Geographic Information Assessment: The Consultant reports, will include the use of dynamic geographic information systems (GIS) to provide a graphic delineation of proposed infrastructure development activities, and the biophysical and social environments most likely to be affected by these activities. The GIS assessments can rely on existing recent databases to provide a visual overview of proposed or on-going improvements to roads, bridges, coastal zones, rivers, communication networks and other infrastructure improvements prioritized during the stakeholder consultation component. The GIS assessments should also create a graphic interpretation of potential impacts that may result from these infrastructure improvements and an interpretation of assets that can be used to mitigate or resolve adverse impacts, with particular attention given to existing or proposed parks and protected areas; indigenous reserves; public forest management units; fossil fuel and mineral extraction concessions; key fisheries areas; commercial agricultural areas; important surface and ground water supply sources; key ecotourism sites; and urban and other important residential areas. The Consultant should use a scale in this geographic assessment that will support qualitative determinations of potential impacts from proposed development activities.

IX. STUDY 2: COUNTRY ENVIRONMENTAL ASSESSMENT

A. Objective

- 9.1 The objective is to conduct a Country Environmental Assessment (CEA) for Guyana that will: (i) develop a strategic framework for Bank staff and others to identify and address environmental priorities; (ii) help guide and forge a consensus between the Bank and Guyana (government, private sector and civil society) on key environmental priorities and on a programmatic approach to improving environmental management; (iii) inform policymakers about the environmental implications of specific policy choices and the country's environmental management, capacity and performance; and (iv) identify areas in which the Bank can support the country in its objectives of reaching sustainable economic growth, poverty alleviation, and protection of the global commons.
- 9.2 The assessment will provide the basis for a concise and pragmatic set of environmental actions that can be undertaken with Bank support in Guyana over the next 4-5 years. These recommendations should build on past efforts and complement on-going activities. Thus, they should be derived from the stakeholder dialogue and comprehensive analysis, the comparative advantage of the Bank in Guyana, and the Bank's current portfolio and pipeline with the country.

B. Activities the CEA

- 9.3 The Consultant will identify specific actions regarding projects proposed for inclusion in the lending program, including private sector Projects, such as:
- i. Requiring preliminary environmental studies and identifying environmental priority issues as part of pipeline management and entry requirements.⁸

⁸ ESP, Directive A6.

- ii. Assessment requirements, including adoption of a pipeline risk management approach to promote and facilitate enabling conditions for proper environmental management particularly when the Bank's proposed portfolio is likely to include public and private sector operations that are potentially environmentally and socially sensitive and controversial;⁹ or identification of categories A and B projects according to the ESP.
 - iii. Specific impacts and risks to be considered during Project ESIA/environmental due diligence and triggering of specific safeguard policies.¹⁰
 - iv. Possible environmental enhancement measures for inclusion as environmental and natural resources management components in non-environmental in non-environmental projects operations, provided these components bring increased net-benefits for the operation as a whole.¹¹
 - v. The definition of strategic priorities for Bank financing and action according to its environmental policy mandate which includes, but is not limited to operations that: (i) combat ecosystem degradation and revert soil, water and air degradation; (ii) strengthen institutional development, capacity building and environmental governance at all levels; (iii) promote the efficient and clean use of energy resources; (iv) improve the urban environment; (v) contribute to the sustainable management of land- and marine-based natural resources; (vi) protect biodiversity and fragile ecological systems; improve watershed and water resources management; (vii) promote the reduction and control of greenhouse gas emissions¹²; and (viii) support regional environmental and natural resources management initiatives, and provisions to support the country in meeting its agreed national obligations under ratified international environmental agreements, including those addressing trans-boundary global and regional environmental public goods.¹³
- 9.4 For each of the recommendations made the Consultant must provide an indication of the key implementation requirements, including an identification of: (i) the governmental, private sector and civil society actors whose support is needed to promote a successful implementation of the action; and (ii) technical assistance (such as capacity building in impact mitigation techniques, Project execution, survey techniques, public consultation skills, or environmental data management) that is required to provide the framework for initiating the recommended actions.
- 9.5 In addition to the above considerations, the following criteria should also be included in the selection of recommendations for Bank support in Guyana: importance; urgency; implementation capacity; costs, benefits and trade-offs; and strategic priorities contained within the Bank's environmental policy mandate.

⁹ ESP, Directive A6.

¹⁰ ESP, Directives A6 and B.

¹¹ ESP, Directive A3.

¹² ESP, Directive A2.

¹³ ESP, Directive A4.

- 9.6 In addition to a written explanation of the recommendations, the CEA reports should include a matrix that summarizes the issues addressed, the related recommendation(s), and the expected outputs and outcomes.
- 9.7 The Consultant will carry out all the studies and investigations necessary to produce two distinct reports for the CEA and SESA. The CEA would be specific to Guyana to support the revision of the Bank's Country Development Strategy and define the Action Plan between the Government of Guyana (GOG) and the Bank on environmental issues and programs; The resulting report will analyze the biological and physical environment, social and institutional context and the strategic impact of development initiatives in the two countries, establish priorities, and assess the state of enabling conditions for environmental management in relation to priority areas of intervention discussed and agreed upon with the country.
- 9.8 The final documents will identify technical data gaps that could constrain the monitoring and evaluation of impacts from Guyana – Brazil Land Transport Link and Deep Water Port and other infrastructure development projects, and describe measures that can be put in place to reduce or eliminate these gaps. The final documents will also include an assessment of institutional capacity to implement recommendations and describe strengthening actions that can be applied to enhance institutions.
- 9.9 Operationally, the SESA and CEA products are different and have different purposes. They all require basic assessments with similar information requirements, which should be optimized to avoid overlapping efforts. Essentially, each assessment covers similar technical topics including: the state of the environment; the legal and institutional framework for environmental management; and the socio-economic and cultural context for program or Project development. Nevertheless, the focus of each assessment is different. For example, the SESA should be linked to specific infrastructure development programs or plans such as the Guyana – Brazil Land Transport Link and Deep Water Port with the aim to identify major environmental and socio-cultural impacts early in the process in order to prescribe mitigation measures to be incorporated in feasibility studies of the specific projects. Conversely, the CEA is focused entirely on Guyana and involves a broader overview of Guyana's environmental situation; a clear understanding of the legal and institutional issues affecting environmental management of the country's adopted development alternatives; and the identification of the respective cross-cutting issues of environmental management and economic development.

X. STUDY 3: ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

A. Objective

- 10.1 The objective of the ESIA is to examine the direct, indirect, and cumulative positive and negative impacts of undertaking the land transport Project linking northern Brazil with a port on Guyana's coast. The ESIA will be conducted in parallel with the Engineering Study which would identify land transport modalities, alternative alignments and alternative port sites. Further, the consultant will be expected to conduct an Impact Analysis in determining the magnitude and relative importance of the various impacts.

- 10.2 The Engineering Study will provide various Project alternatives for the construction of a port in the estuaries of any of Guyana's three main rivers; Essequibo, Demerara or Berbice, or at a point along Guyana's Atlantic coast. The various land transport links (road and rail) with the ports would be investigated and conceptual/preliminary designs proposed for the different port and land transport combination. These alternatives must be analysed from an environmental impact and risk perspective which will influence the selection of alternatives for more detailed study.
- 10.3 Draft an Environmental and Social Management Plan (ESMP) outlining measures to mitigate, prevent or compensate any significant negative impact, and measures to optimise the favourable benefits.
- 10.4 Update the Indigenous Peoples' Plan (IPP) modify where necessary in order to identify the potential impacts on Guyana's traditional Peoples of land transport route from Brazil and the port on the coast. The IPP must outline measures to mitigate, prevent or compensate any significant negative impact, and measures to optimize the favourable benefits.
- 10.5 Provide a budget estimate for the activities required to mitigate the identified impacts projected and the institutional structure needed to manage the short and long term impacts of the Project.

B. Activities / Methodology. Scope

- 10.6 Establish baselines for key environmental and social parameters, including socioeconomic conditions. These would be used for monitoring and evaluation as part of Project implementation.
- 10.7 Identify the detailed positive and potential negative social and environmental impacts (direct, indirect and cumulative) of the proposed activities. Provide measures to enhance the positive impacts and to establish a framework for identification of mitigation response to and monitoring of the adverse impacts as part of the Project.
- 10.8 Conduct an impact analysis that will include methods for quantifying impacts, and description of impacts according to their character, condition, period, scope condition, period, scope.
- 10.9 The ESIA and Environmental and Social Management Plan (ESMP) must satisfy the requirements of the Guyana Environmental Protection Act, 1996 and the Regulations, 2000 as well as the IDB Policies OP 102, OP 703, OP 704, OP 710 and OP 765 for the land transport link and port. To achieve this objective, the Consultants will be required to review all the pertinent environmental and social aspects of the proposed Project area. Upon completion of this review a report must be prepared and presented in accordance with the provisions and regulations of the Environmental Protection Agency (EPA) and must capture the required information outlined in this TOR.
- 10.10 Although this TOR is comprehensive it is by no means exhaustive and should be extended to capture all relevant information relating to this Project. The Consultant will be allowed to include relevant information at their discretion and is responsible for all studies conducted under this Project.

Environmental and Social Impact Evaluation

A1. Area of study

- 10.11 The area of study should include all areas that are likely to be impacted by the implementation of this Project. All areas where the Project intersects with human settlement, including residential, commercial, industrial, etc. should be carefully examined to determine the Project's impact. The environmental impacts must centre on the area of direct environmental and social influence (ADI), defined as a band 5 km on each side of the centre line of the alignment of the transport corridor, or a 5 km radius for port provided that this band can be extended to cover a functional unit and shall include:
- the existing areas of human concentration
 - the right of way
 - protected areas
 - ecological sensitive areas
 - the areas required for material stockpile, traffic diversions, asphalt plants, etc.
 - the transportation routes between any quarries and dumps
 - relevant functional units even if only partially affected (i.e. protected areas, wetlands, agricultural plots, commercial establishments, etc.)
- 10.12 All remaining areas where the Project will have an indirect or lower intensity impact, comprises the areas of indirect environmental and social influence (AII). The Consultant will be expected to produce maps depicting the areas of direct and indirect influence throughout the length of the transport corridor and port site or their functional extension at an appropriate scale showing the following:
- The population centres, protected areas (if any), and principal services
 - Other representative physical, biotic, socio-economic and cultural features should also be included
 - A cadaster of the land units on or adjacent to the ROW identified on a map
- 10.13 Whenever the transport corridor or port site passes close to ecologically fragile and/or protected areas, such as archaeological areas and human settlements or culturally important sites, the scope of the assessment shall be widened to permit evaluation of the impacts of the works and use of these facilities in those areas.

A2. Environmental and Social Baseline Assessment

- 10.14 The Consultant will be required to carry out an Environmental and Social Baseline Assessment (ESBA) for the situation prior to Project implementation. This assessment should aim to examine the significant short and long term effects of the proposed Project on the existing environment within the Project area and area of influence. Further, the evaluation must include the processes of analysing, monitoring and managing the intended and unintended environmental and social consequences, both positive and negative, of proposed Project and any environmental and social changes invoked by the implementation of the Project. The report to be submitted must meet the following requirements:

- Establish the baseline environmental and social conditions within the Project's area of direct and indirect influence. In achieving this objective a complete description of the existing conditions within the Project area must be examined. Further the Consultant will be required to review all available data/study on the biological, physical, socio-economic characteristics of the Project area as well as the area of indirect influence. Special emphasis should be placed on those aspects which have the potential of being affected by the implementation of this Project
- A detailed description of the physical environment should be produced and information relating to the geology, soils, land use (present and historical land use), hydrology, meteorological conditions and patterns, drainage and irrigation, water use, surface and ground water quality, air quality, environmental noise, etc. must be captured in the report
- Provide a detailed description of biological environment including information on the flora and fauna, any sensitive ecological habitats and endangered species existing within the Project area, aquatic environment including wetlands, etc. The study should also identify of the existing waterways within the Project area and the environmental implications of the Project for these structures
- A description of the socio-economic environment including information relating to demographics, land use, education levels, health, income, means of transportation (motorized, non-motorized), social characteristics, traffic patterns, types of businesses that may be affected, identification of lots and necessary relocation due to construction, infrastructure services that may be affected including drainage and irrigation structures, utilities including telephones, electricity, etc.
- Inventory and evaluation of public and private infrastructure and buildings in the areas of direct influence during construction and operation, with a view to: (i) establish a base line to address any future damages or related claims; (ii) identify vulnerabilities and corresponding prevention, monitoring and mitigation measures; and (iii) design operating procedures and monitoring requirements
- Identification of the archaeological, historical and tourist sites in proximity to the land transport route and port and evaluation of the positive and negative impacts of improved access to these areas. If the road/rail/port and its approaches traverse or affect areas of archaeological interest, the Consultant shall contact Environmental Authorities and ascertain the legal status of the areas and the specifications and requirements of the institute for appropriate treatment of the cases. Areas of communal interest (churches, cemeteries, other sites of cultural or religious significance must also be considered

A3. Environmental and Social Impact Assessment

- 10.15 The ESIA should examine the potential social and environmental impacts emanating from the implementation of the proposed Project. The primary aim should be to

identify the magnitude and other dimensions of the predicted social and environmental change resulting from execution of the Project, using as the point of reference, the existing situation within the Project area. Impacts should be assessed based on the social, ecological and physical information collected during the Environmental and Social Baseline Assessment (ESBA) conducted by the Consultant. The Consultant will be expected to capture the following information.

- 10.16 Provide a detailed description of the Project activities from conception through design, construction and operation in order to identify and evaluate the indirect, direct, and cumulative impacts during the execution of the works as well as during the operation phase of the roadway; including land use and community structure and activities.
- 10.17 Identification and evaluation of direct and indirect impacts during execution of the works and when the road comes into use taking into account compliance with local regulations and the provisions of OP-703 (particularly Directives B.9, B.10 and B.11) and OP-710.
- 10.18 A characterisation of the potential impacts on the physical, biological, ecosystems and social components in the area of environmental influence traversed by the highway.
- 10.19 The evaluation of the impacts on the physical environment should assess the potential impacts during the construction phase and must cover issues such as direct land loss, erosion, soil compaction, potential impacts due to accidental spills and noise and vibration from construction activities, etc. should be examined.
- 10.20 In addition, impacts of the Project implementation on the air quality should also be examined. Issues to be covered include impacts noise and dust from construction activity, dust from the transport and stockpile of materials and fumes emission from the operation of heavy duty machinery, etc.
- 10.21 The evaluation of the impacts on the biological environment should assess potential impacts on the surrounding water resources. The water ways crossed by the highway should be identified and the potential environmental impacts resulting from the Project's implementation including narrowing of their widths, erosion, blockage of streambeds, contamination etc. must also be examined.
- 10.22 Identification of runoff and infiltration issues, including mapping of nearby underground water resources and wells.
- 10.23 Identification and demarcation of fragile and/or protected ecosystems within the proposed Project area, where necessary and the impacts on these ecosystems including loss of habitat, etc. are to be considered.
- 10.24 Evaluation of the principal water uses and identification of potential impacts on water quality due to accidents or transportation of hazardous materials.
- 10.25 The aesthetics of the environment can also be adversely affected during construction phase of the Project. Some issues to be examined includes change in aesthetics of the surrounding environment, improper disposal of solid waste and builder's waste

generated from the Project and unsightly construction activities such as improper storage of stockpiled material.

- 10.26 An evaluation of the impacts on the archaeological, historical, cultural and tourist sites in proximity to the highway and evaluation of the positive and negative impacts of improved access to these areas.
- 10.27 The evaluation should examine the extent of social disruption during the each phase of the Project from mobilization through operation phase and provide appropriate mitigation measures to reduce these impacts to acceptable levels. Impacts to be considered include socio-economic, health and safety including risk of accident to workers and the surrounding communities, introduction of diseases to the community, community culture and values, and potential implications on the residence. The general implications on the changes of land-use and social-community resources should also be examined.
- 10.28 Where expropriation and/ relocation or restriction of use affecting households, businesses or other land users becomes necessary, the Consultant will be responsible for identifying precisely the number of persons affected, their legal rights to the property, their dependence on the land for subsistence and detailed socioeconomic characterization. If resettlement is necessary the Consultant shall prepare a resettlement and compensation plan in accordance with the IDB's guidelines for involuntary resettlements, (OP-710).
- 10.29 The Consultant must quantify and assign priorities to the impacts and classify them according to their importance, magnitude and extent, the permanence of the impact (temporary, permanent), the sphere of influence (local, regional, etc.), 'mitigability', reversibility, probability of occurrence and other appropriate characteristics.
- 10.30 The Environmental Specialist will actively participate with the Project Engineering Team in the process of defining all details of Project design in order to ensure the best environmental and social solutions are provided. Joint effort is required in the preparation of, among other things:
- Map of the land transport alignments and ports site (including approach channels) on an appropriate scale of the area of direct environmental influence (ADI), showing the locations of the existing human settlements, the areas required for encampments, water ways crossed by the these roads/rail, areas of landslides, traffic diversions, etc., and extending that area of influence to include ecologically fragile and/or protected areas, and archaeological, tourist, historical and other settled areas, on which impacts will be exerted during execution of the works and use of the road/rail and port.
 - Recommendation of the environmental characterization of the areas proposed for implementation of the supporting infrastructure for the works (asphalt plants, encampments, disposal areas, fuel storage, and service roads, among others). This characterization shall cover, among others, the aspects of relief, plant cover, surface and ground drainage, the direction of the prevailing winds, accessibility, and proximity to protected archaeological areas.

- On the basis of the resulting characterizations, definition of the recommended areas, performance of the preliminary studies for the plan for recovery and use of the selected areas and estimation of the corresponding costs for inclusion in the project budget. Also, recommendation of the specific measures for the control of degradation in and environmental recovery of each of the selected areas, and framing of the rules of behaviour for the workers for environmental safeguards and relations with settlements in the vicinity of the encampments.
- The Consultant shall recommend locations for material dumps, stockpile of materials and other necessary areas required for project execution so that they do not become environmental issues such as erosion into surrounding water ways, dust nuisance, and areas where traffic patterns will be significantly modifies or where the change in accessibility is likely to spur significant changes in land use patterns, etc. The aspects of potentially usable sites to be considered must include the possibility of conflicts with their owners or with environmental or RDC authorities. Finally, the recommended dump and storage sites must be such as can be reconstituted and replanted for integration into the landscape upon completion of the works.
- The Consultant and the Engineer Team should identify potential construction material sources (sands, aggregates etc.). The operational/extraction aspects of these materials should be examined to ensure that they do not become environmental issues such as erosion into surrounding water ways, dust nuisance, and areas where traffic patterns will be significantly modifies or where the change in accessibility is likely to spur significant changes in land use patterns, etc. The aspects of potentially usable sites to be considered must include the possibility of conflicts with their owners or with environmental or RDC authorities. Finally, these sites must be such as can they be reconstituted and replanted for integration into the landscape upon completion of the extraction.
- The Consultant and the Engineer Team must also ensure safe crossing conditions, adequate road markings and street lighting wherever needed and incorporate these aspects into the road safety measures to be implemented.
- The Consultant must ensure that all environmental and social mitigations measures are included in the designs and resources are allocated accordingly.

10.31 Identify the relevant laws, guidelines, regulations and standards that would define the operating framework of the Project. Legal aspects related to the Project including licensing requirements and procedures, land use permits and any other relevant norms should be included. All documentation required for licensing should accompany the study.

Evaluation of Environmental Liabilities

10.32 The Environmental Liabilities usually generated by land transport corridors and ports are the impacts on third parties from existence of these facilities and the impacts of third parties on it. Since in the latter case those third parties cannot always be identified and held accountable, these environmental liabilities have to be corrected

only in cases of hazard to the road infrastructure and its users. Below are examples of impacts classed as environmental liabilities are:

- Landslides and slumps, cave-ins, and slope instability
- Erosion, silting, streambed obstruction, flooding resulting from changes in drainage and permeability
- Uncontrolled off-site dumping
- Water pollution
- Ecological and landscape damage in natural areas
- Areas degraded by quarrying and extraction of other materials for the works, the opening of service roads, encampments, etc.
- Accesses to and from local roads and streets of human settlements blocked by the road or rail
- Damage to sources of water of human settlements and/or of irrigation canals along the road or rail
- Interference with pedestrian or non-motorized traffic that creates safety hazards
- Interference with riverian traffic especially small boats used for ferries or by farmers and fishermen.
- Hazards or nuisances affecting residential or commercial uses of the land adjacent to the Row and port, including noise, dust, vibration
- Occupation of the right-of-way
- Damage buildings or infrastructure as a result of construction activities or traffic (vibration, impact, dust and soot, etc.)
- Safety and related injury issues

10.33 The Environmental Liability of the road/rail and port under study for construction will be confined to impacts that put at risk the route, its users, and the areas, ecosystems and communities near the right-of-ways, accesses and ancillary facilities, including transfer and detour areas during construction.

10.34 To identify the environmental (including any social aspects) liabilities the Consultant will have to carry out the following activities:

- i. Devise a methodology for the evaluation of environmental liabilities.
- ii. Design and submit for approval by the Bank the characterization sheet that will be used to enter the environmental liabilities.
- iii. Classify the environmental and social liabilities into categories.
- iv. Compile all information needed to fill out pre-established characterization sheets.
- v. Consult with stakeholders.

- vi. Fill out the characterization sheets for each individual situation (environmental and social liability) detected, which shall contain, at a minimum:
 - Its location, approximate dimensions, obtained by quick reliable procedures
 - Its identification under the pre-established general classification
 - Its description, including its probable causes
- vii. Mount in an annex photographs of the most important and unusual features of the environmental liabilities.
- viii. Enter on the baseline map as an additional layer, the environmental and social liabilities detected for the road and approach roads and ancillary facilities and transfer routes, showing the distance location in kilometres. The map shall contain, at a minimum, the urban areas near the main highway and the watercourses and secondary, important natural or historical features roads that cross or connect to the roads under evaluation.
- ix. Submit the characterization sheet to the Banks for final approval.
- x. Classify the environmental land social liabilities as critical and non-critical in accordance with the definitions proposed by the consultant and accepted by the Banks.
- xi. For the critical liabilities include, in addition to the information referred to above, a characterization of the works, services and/or corrective measures recommended, including schematic sketches of the solutions proposed, a determination of the quantities, costs and budget and the critical environmental liabilities to be eliminated or mitigated in the works. The solution of these liabilities must be included in the Project's budget.
- xii. For the non-critical liabilities include a ranking of importance and options for attenuation measures, including identifying the need for monitoring.

Public Consultations Guidelines

- 10.35 The Consultant must also implement a Stakeholder Consultation Process that fulfils the requirements of informing and engage the general Public from the opening phase of the study, of the intention of the MPW to implement the Project and further to listen to the expectations and concerns of the population regarding the scope of the Project before the studies are done and its implementation begins.
- 10.36 Any consultation process initiated must fulfil at a minimum the following objectives:
- Facilitating the incorporation in the Project of the measures required for its technical, environmental and socio-cultural viability and capturing the view of the affected persons
 - As far as practical establish agreements with stakeholders or at minimum achieving an adequate degree of acceptance on the part of the affected groups

- Incorporate the concerns/needs of the affected persons as well as beneficiaries into the Project's priorities
- Devise a methodology to promote local ownership of the Project and facilitate cooperation during construction and operation for instance systems and tools for continuous engagement with stakeholders including the preparation of a Communication Plan and the appointment of a Community Liaison Officer, early identification of potential conflicts and strategies to avoid or overcome them
- Providing for transparency in the management of the Project and the impacts and opportunities it brings to the affected stakeholders
- Gathering local intelligence that can facilitate and improve Project design and implementation through interactive/participatory session with stakeholders

10.37 The Public consultations process should be designed and executed with due account to the principles of sound consultation and stakeholder engagement including:

- Early consultations
- Wide consultancy that captures the sphere of direct and indirect influences of the Project
- Collect and maintain proper documentation of stakeholders concerns raised during consultations
- Be knowledgeable about all the options being considered for the Project and their potential impacts
- Allow stakeholders reasonable time for absorption of information, convening of stakeholders and provisions of feedback
- Report on issues identified in a balanced and objective manner
- Request feedback from stakeholders for instance with the provision of questionnaires at the end of consultation meetings, etc.
- Conduct consultation in mutual good faith and maintain a two way process at all times

10.38 In achieving the above-mentioned objectives of the Public Consultations the following tasks must be met by the consultant.

Task 1: Scoping and Stakeholder identification and analysis

10.39 The Consultant will be expected to make reconnaissance site visits and based on information gathered should identify and prioritize stakeholders within the areas of direct and indirect influence, with special emphasis being placed on the vulnerable groups such as children and the elderly and any other disadvantage groups/subgroups whose needs are less likely to be taken into consideration under the usual planning scenarios.

10.40 Once the universe of stakeholders has been identified, analyze their relationship to the Project and relationships among the groups as relevant, to establish the relative

priority of engaging with each group. Provide a mapping of the stakeholders that takes into account the following factors as they relate to the Project:

- Impacts, risks and opportunities generated
- Stakeholders' characteristics, assets, capabilities and vulnerabilities
- Stakeholders' interests and influence

10.41 Based on the results of the initial analysis of the various stakeholders group, the Consultant should outline how the respective consultations will be executed.

Task 2: Consultation Plan

10.42 Prepare a Consultation Plan and communicate to stakeholders which should include at minimum:

- A non-technical summary of the proposed Project for the stakeholders to make informed decisions on whether, or the degree to which, they may be affected by the implementation of the Project;
- A scheduled timeframe for consultation that allow for stakeholders to absorb Project information, ask for clarifications and provide feedback. Consideration must be given to Public holidays, work schedules and local scheduling preferences with a view of maximizing stakeholders participation;
- The manner of consultation (seminars, presentations, interviews, open-houses, workshops, structured or unstructured surveys, workshops, etc.) that is designed to elicit the interest and participation of the different types of stakeholders, should take into account:
 - Inclusiveness that allows for the participation of individuals as well as their functional and organic organizations
 - Attention to verifying the legitimacy of any one acting in a representative capacity and to avoiding conflicts with existing representation systems
 - Particular attention to providing for inclusion for a typically marginalized groups (such as women, youth, the elderly, the disabled and ethnic minorities depending on the situation)
 - Notifying stakeholders of consultation prior to their execution with emphasis being on reaching those expected to be affected
 - Opportunities for stakeholders to participate in more than one event so that they can internalize information and consult with their own counterparts before providing final feedback
 - Provision of all relevant Project information to the stakeholders
 - The scope of the inputs expected and of the ways in which stakeholder concerns will be included in the Project
 - Conflict management strategies if opposing interests are identified

- 10.43 The final Consultation Plan should also take in consideration the consultation requirements of local Agencies such as the Environmental Protection Agency.

Task 3: Implement the Consultation Plan

- 10.44 Carry out the consultation according to the plan employing a variety of methodologies as needed to ensure proper coverage of the various stakeholder groups. Given the nature and location of the Project, particular attention should be given to concerns that below:
- changes in connectivity or accessibility of neighbourhoods, public services and community resources
 - traffic and pedestrian safety and access
 - traffic and safety of small crafts around the port
 - exposure to noise, dust, fumes, risk of accidents and other nuisances or hazards
 - the acquisition of the ROW, private lands and other land use changes that could cause physical displacement of homes, commercial establishments or economic or community activities and uses including as street vending, recreational uses, use as public meeting places, transportation hubs, etc.
 - changes in economic activities and livelihoods resulting from changes in traffic patterns and accessibility for both land transport and port sites
 - potential for in or out-migration as a result of job opportunities and/or changes in access to the Project site. Further issues related to labour, job opportunities for local population and Project labor force training, housing and code of conduct should also be examined
 - increased risk of accidents or exposure to hazards from heavy traffic and hazardous loads
 - community needs and opportunities related to the Project
 - affectation of infrastructure, crops or activities as a result of the construction or operation of the improved road and its ancillary works and changed patterns of use (including impacts of changes in drainage, vibration, noise, dust or light from construction or traffic, proximity of foot or vehicle traffic
 - any other issues, concerns, needs, demands or perceptions related to the Environmental and Social Assessment issues described in the scope of the assessment
- 10.45 The methodology for carrying out the consultation needs to clearly identify the roles of the participants, the rules of engagement and the scope of the results that can be expected. Time should be allocated for brain storming to identify issues, concerns and expectations/demands and then proceed to analyze the causal relationships with respect to the Project and to identify potential solutions and alternatives for issues identified during such session.

Task 4: Compile and analyze the results and provide them to the Technical Team

Once all groups of stakeholders have been consulted, the Consultant shall prepare a report that classifies their inputs and analyzes their relevance to the Project in terms of at minimum:

- environmental impacts and risks
- social impacts and risks
- community support for the Project
- community objections or opposition to the Project
- opportunities to improve the fit between the Project and the stakeholders' needs and demands
- key points that require feedback to the stakeholders and stakeholder issues that might pose a risk to the successful implementation of the Project

Task 5: Prepare and deliver presentation(s) to the stakeholders providing feedback on their inputs

10.46 The Environmental Specialist and Engineering Team will be required to analyze the inputs and information gathered during the consultations and to determine how to provide feedback to the stakeholders. This would include:

- explain any misconceptions about the Project to allay unjustified concerns
- proposing feasible Project design change or improvement options that can address specific concerns
- explaining any Project limitations and any issues that are beyond the scope of influence of the Project or inevitable impacts that are not feasible to avoid or fully mitigate
- proposing mitigation or compensation measures that would be available to address potential environmental, social and economic risks or impacts and the process by which the Project will work with the affected stakeholders to assess the impacts and implement the measures
- describing the process the Project will implement for continued engagement with stakeholders whose concerns require implementation of management measures
- describing the communication plan to keep stakeholders informed in later stages of Project development as needed and proposing mechanisms for continued interaction (such as stakeholders' committees, hot lines, etc.)
- informing stakeholder of how they can follow up on the Project if they wish to do so and how they can obtain and provide information with respect to the performance of the Project
- and, if the analysis identified potential conflicts, describing the process the Project will implement to receive and respond to stakeholder complaints (a grievance management mechanism)

10.47 This feedback process should be provided in a brief written report and disseminated through a series of targeted presentations to key stakeholder groups.

Environmental and Social Management Plan

10.48 An environmental and social management plan shall be drafted (in accordance with IDB Safeguards OP-703-Directive B.5), which shall include the below:

- An impact mitigation plan with descriptions of each mitigation measure proposed, the impact to which it relates, the conditions under which it will be required (in the design, before or during construction, permanently, for contingencies, etc.), and the design requirements and procedures for its execution. Each program must have a budget for its implementation
- A program for environmental and social follow-up or monitoring. Definition of the institutional responsibilities for implementation of each mitigation measure, including (i) implementation; (ii) operation, (iii) maintenance, (iv) control and supervision during construction and operation of the works, and (iv) environmental and social monitoring and reporting
- A program for resettlement and/or social compensation / expropriations (if necessary) in accordance with OP-710, including Social Baseline Information, community participation, compensation and rehabilitation package, legal institutional framework, environment, timelines, monitoring and evaluation and coordination
- An investment program, a timetable and estimated budget for all investments and recurrent costs in implementation of the environmental management plan
- A communications and grievance management program
- A timetable of the activities, which must be synchronized with the activities for construction of the main components of the Project and/or its operation phase

10.49 The expected components of the management plan include, among others:

- soil erosion control, slope stabilization, drainage management, and restoration of natural vegetation in temporary use areas
- environmental measures for the protection of surface and ground water courses and the preservation of their quality and quantity and of aquatic fauna
- control of atmospheric emissions (dust and gasses) and noise which affect the workers, neighbouring inhabitants, crops or the general environment
- measures to manage and restore the areas impaired by the installation and operation of all ancillary facilities and transfer routes including asphalt plants, quarries, crushers, etc., to their natural condition
- measures for the management of domestic and industrial solid wastes and for control of sewage discharges during construction

- special measures to attenuate the barrier effect of the works and to avoid disturbing the native flora and fauna
- appropriate quarrying procedures to avoid excessive degradation of the areas to be worked and, afterwards, levelling, earth-filling, replanting and other needed measures to restore the quarried areas to their natural condition
- appropriate procedures for using the areas slated as dumps for refuse and spoil from levelling and other wastes, with due regard for the site selection and design of the dumps, how materials are to be placed in them, and appropriate cover to ensure their stability
- measures to offset impacts that cannot be mitigated, such as compensation to owners of land, structures, businesses, crops and other installations to be affected by the widening of the road
- measures for resettlement and compensation of any households, businesses or land users to be displaced by the road or having their access to resources, services or markets restricted directly or indirectly (if required)
- measures to protect nearby natural areas and wild life from direct impacts of construction or impacts due to increased access and land use change impacts (if required)
- measures to protect local population from the influx of large numbers of workers and to deal with potential problems such as alcohol and substance abuse, HIV-AIDS prevention, etc.
- identification of the costs and benefits of the mitigation and the environmental management plans in order to include them in the economic-environmental evaluation
- measures to ensure compliance with local laws and the fundamental rights at work with respect to the contracting of labor for the Project, and to implement assurance systems for worker health and safety
- measures to manage spills of fuels and oils, and their disposal during construction
- measures to manage traffic, noise and accidents during construction
- and measures to control impacts during operation including speed reduction elements, signals, barriers, safety measures, and contingency plans in case of accidents and incidents involving hazardous materials, control noise, dust and vibration, maintain pedestrian access and connectivity, etc.

Indigenous Peoples' Plan (IPP)

- 10.50 Review the background information based on the documents and preliminary designs produced for land transport link and port, and the implications for the Indigenous population.
- 10.51 The consultant will conduct an assessment on the legal framework governing uyana's indigenous peoples that should contain: (i) the legal status of the groups covered by

the Government of Guyana policy on indigenous peoples as reflected in the country's constitution, legislation, subsidiary legislation; (ii) the donor's policy on indigenous peoples, and (iii) the ability of such groups to obtain access to and effectively use the legal system to defend their rights. Particular attention should be given to the rights of indigenous peoples to use and develop the lands that they occupy, to be protected against illegal intruders, and to have access to natural resources (such as forest, wildlife, and water) vital to their subsistence and reproduction as well as access to social services.

- 10.52 The consultant will utilise various method of consultation to obtain baseline data that will include (i) accurate, up-to-date maps of the area of the upgrade road and its area of influence. These maps must also illustrate the areas inhabited by indigenous peoples and the recognized areas of territorial land or influence, (ii) analysis of the social structure and income sources of the population, (iii) inventories of the resources that indigenous peoples use and technical data on their production systems, (iv) information on cultural practices and patterns, and (v) the relationship of indigenous peoples to other local and national groups. The baseline studies should aim to capture the full range of production and marketing activities in which indigenous peoples are engaged.
- 10.53 An examination of the land tenure system in place and how it impacts the indigenous peoples' traditional way of life, if at all.
- 10.54 The consultancy should identify mechanisms that exist or need to be devised and implemented to ensure the indigenous peoples' participation in decision making throughout the life of the upgraded road surface.
- 10.55 The consultant will be expected to compile and appraised in a detailed manner existing and proposed services such as education, training, health, credit, and legal assistance present or needed for the communities to ensure that they benefit fully from the rehabilitated road surface.
- 10.56 The consultant should conduct an institutional assessment of the track record, capabilities, and goals of the government institutions responsible for indigenous peoples. This assessment should examine the: (i) availability of funds for investments and field operations; (ii) adequacy of experienced professional staff; (iii) ability of indigenous peoples' organizations, local administration authorities, and local non-government organizations to interact with specialized government institutions; (iv) the ability of the Iwokrama Rainforest Reserve to provide assistance to the Indigenous communities, and (v) ability of the executing agency to mobilize other agencies involved in the IPP's implementation.
- 10.57 The consultant should develop a set of SMART indicators and an implementation schedule with benchmarks by which progress can be measured at appropriate intervals. Specific tasks by responsible bodies, such as the Ministry of Amerindian Affairs, the Ministry of Public Works, the Guyana Environmental Protection Agency, the Amerindian Peoples Organizations, Ministry of Education and the Ministry of Health, should be spelt out. The IPP should pursue the long-term sustainability of activities that can benefit from the Project over and beyond its life.

- 10.58 The monitoring and evaluation regime should be identified, with timelines, budgets, and areas of responsibilities clearly adumbrated.
- 10.59 The consultant should include detailed cost estimates for planned activities and investments. The estimates should be broken down into annual unit costs and linked to a financing plan. Programs such as revolving credit funds that provide indigenous peoples with investment pools should indicate their accounting procedures and mechanisms for financial transfer and replenishment.
- 10.60 Provide recommendations on the most appropriate means to be pursued to minimise the negative externalities that may be associated with the projects and how the positive benefits can be magnified, allowing the indigenous peoples' to benefit fully from the land transport link and port.

Final Report on the Environmental and Social Impact Study

- 10.61 The report to be presented must be analytical and concise, and emphasize the significant social and environmental problems, the measures and actions recommended, and the costs and responsibilities involved. In addition to the above-mentioned, it must also include the following.
- 10.62 In addition the final ESIA/ESMP must include a monitoring plan to identify mitigation and monitoring cost for every phase of the Project. The monitoring plan should cover auditing, reviewing, reporting including monitoring sheets to be used and corrective action to be taken for non-conformance to ensure compliance with the ESIA/ESMP.
- 10.63 Emergency response plan should identify potential environmental and social issues emanating during the execution of the Project. This plan must include emergency response policy, emergency response contact personnel along with their appropriate details, emergency procedures. A description of an emergency should be included in this section of the report. Where applicable response procedures to minor as well as major accidents/incidents should also be developed for fire, accident, traffic accidents and fuel spills. The consultant should also develop an incident report formatting.
- 10.64 Closure plan where consideration should be given to principal closure and decommissioning issues that may arise. Recommendations for the predicted issues should also be identified.

Workshops and Training

- 10.65 The Consultant would facilitate three (3) workshops and training sessions for the Ministry of Public Works (MPW) during the course of the study. The workshops will be in the form of presenting the results of the study in a setting that would allow interaction between the Consultants Team, MPW and the Bank that would both inform the client parties and offer feed back to the consultant. The training sessions would be in technical subject areas that are relevant to the study being undertaken. The topics for the training would be decided upon at the inception of the study through after consultations between the Consultants Team, MPW and the Bank.

XI. OUTPUTS / DELIVERABLES

- 11.1 The progress and findings of the assignment will be presented in the following reports:
- i. Inception Report. This should set out clearly and concisely the approach to be adopted by the consultant to meet the objectives of the study. It shall contain the finalized schedule and workplan for the implementation of the consultancy, which will update the schedule proposed in the consultant's technical proposal for bidding. It should also include the details for the scoping exercise
 - ii. Scoping report and updated TORs for the SESA, CEA and ESIA
 - iii. Draft SESA
 - iv. Draft CEA
 - v. Draft Consultation Report. This report will contain the findings of the consultation process, recommendations emanating and minutes of the meetings
 - vi. Draft ESIA
 - vii. Draft ESMP
 - viii. Draft IPP
 - ix. Final Report 1. This will incorporate the consultant's responses to the IDB and GOG comments on the SESA and CEA
 - x. Final Report 2. This will incorporate the consultant's responses to the IDB and GOG comments on the Consultation Report, ESIA, ESMP and IPP
- 11.2 All reports shall be presented in one printed copy (including all appendices, drawings, tables and graphs) and in electronic form (editable and non-editable formats). The Consultant shall supply six additional printed copies of the Final Report (including all appendices, drawings, tables and graphs) and in electronic form (editable and non-editable formats).

XII. CONSULTANCY SPECIFICATIONS

Type of Consultancy

- 12.1 The consultancy will require the services of an international consulting firm with extensive experience in transportation engineering, and carrying out environmental and social studies. It is essential that the consulting firm demonstrate experience working on such studies in developing countries, particularly in the Caribbean and Latin American region.

Financing

- 12.2 The cost of the consultancy will include the consultant's remuneration as well as the costs of all incidentals associated with the conduct of the consultancy. The incidentals include, but are not limited to: surveys, hosting meetings, trips, travel allowances, international calls, local transportation, secretarial expenses, copying and office

supplies. The cost of the consultancy will include the consultant's remuneration as well as the costs of all incidentals associated with the conduct of the consultancy. The incidentals include, but are not limited to: surveys, hosting meetings, trips, travel allowances, international calls, local transportation, secretarial expenses, copying and office supplies.

Duration

- 12.3 The duration of the study shall be 48 weeks.

Location

- 12.4 The study shall be carried out in Guyana but will also require research in Brazil if and where necessary.

Reporting Schedule

- 12.5 The outputs / deliverables of the study shall be presented as follows.
- Inception Report shall be submitted to the IDB four weeks after the commencement date of the contract
 - Scoping report and updated TORs for the SESA, CEA and ESIA eight weeks after the commencement date of the contract.
 - Draft SESA and CEA Report: According to the scope of work and outline described earlier, 20 weeks from contract signature
 - Final Report 1 – SESA and CEA Final Report: According to the scope of work and outline described earlier, 26 weeks from contract signature
 - The Draft Consultation Report, Draft ESIA, Draft ESMP and Draft IPP shall be submitted to the IDB in accordance with the Consultants Schedule in Inception Report but not later than 36 weeks after the commencement date of the contract
 - Final Report 2 consisting of the Consultation Report, ESIA, ESMP and IPP shall be submitted to the IDB at the end of 48 weeks after the commencement date of contract (including 8 weeks for receipt of comments and 4 weeks to make any necessary changes following comments)

Payments

- 12.6 The payments will be done according to the following schedule:
- 10% upon submission of acceptance Inception Report
 - 10% upon submission of acceptance Scoping report and updated TORs
 - 20% upon submission of the Draft SESA and CEA
 - 15% upon acceptance of the Final Report 1
 - 25% upon submission of the Draft Consultation Report, Draft ESIA, Draft ESMP and Draft IPP
 - 15% upon acceptance of the Final Report 2

- 5% on completion of Workshop and Training

Expertise Required

- 12.7 Qualifications of the consultants: All members of the team should have a post-graduate level degree (Masters or PhD), with a minimum of 10 years professional experience in the field. Fluency in English will be a pre-requisite for each team member. The individuals comprising the team should have direct, relevant, and/or recent experience in the preparation of environmental assessments and national impact and development planning in Guyana or a country with similar social and environmental conditions. Familiarity with preparation of IDB documents and Project proposals is desirable. The suggested core team should consist of seven (7) specialists:
- A Project team leader with extensive experience in integrating environmental, social and economic considerations in countries similar to Guyana, as well as in Project management (possible backgrounds for this position include geography, environmental planning, engineering or related fields)
 - An institutional specialist with experience in analysing environmental governance frameworks, including key economic and social policies that impact the environment
 - A specialist in natural resource economics with experience in environmental and cross-sector analyses
 - A specialist with experience in strategic environmental and socio-cultural assessments of direct, indirect and cumulative impacts of large-scale infrastructure projects
 - A geographic information specialist
 - A professional in the fields of biology/ecology specialized in biodiversity in tropical ecosystems.
 - A socio-cultural specialist with experience with indigenous population
- 12.8 If deemed necessary, and not exceeding the suggested budget for the consultancy, the consultant may propose additional staff as part of the team. The Consultant must specify the qualifications and experience of each key expert to be assigned to the assignment. For each key expert proposed, curriculum vitae of about four pages should be provided detailing the relevant experience and qualifications. Members of the consultancy team must have working experience in developing countries.
- 12.9 The Consultant is free to define the individual duration of assignments and recommend changes to the composition of the team. All team members must be present in Guyana when conducting their assignments.

XIII. COORDINATION

- 13.1 The IDB is the executing agency for the Consultancy on behalf of the Government of Guyana. The Consultant shall report to the IDB Project Team Leader who will be the administrator of the contract. The IDB Project Team and Ministry of Public Works

will have a role entailing the reviewing and evaluation of the outputs and approving the study.

- 13.2 The MPW will facilitate the issuing of any permits required for the Consultant to carry out their duties and make available all relevant reports, documents, maps and data.

TERMS OF REFERENCE ECONOMIC AND FINANCIAL STUDIES

I. BACKGROUND

- 1.1 Guyana shares its borders with two northern Brazilian states, the States of Roraima and Para; and has traditional ties with the States of Amazonas whose capital city, Manaus is the primary economic zone of northern Brazil. Notwithstanding this, currently there is little trade between these states and Guyana. Further these Brazilian states are land lock with no direct access to ocean going shipping ports, and uses Atlantic ports in Brazil via the Amazon River and Venezuela. Virtually all the import and export movements of Manaus (Amazonia) and Boa-Vista (Roraima) are containerized.
- 1.2 Over the years, the Governments of both countries have been working towards their enhancement of trade, economic and physical integration. This cooperation has so far resulted in a paved road in Roraima, Brazil up to the Takatu River border and the bridging of the Takatu River in 2009, at the border with Lethem.
- 1.3 The proposed land link will join the northern states of Brazil through the Guianas and facilitate shipping¹ access from port(s) in Guyana for imports and exports² to and from Roraima, and Amazonas and the northern Atlantic, the Caribbean, North and Central America. The development of this land transport link between the two countries and the port is also seen as critical in the fostering of this integration process for the Caribbean region as a whole which has a large trade deficit with Brazil although only importing 5%³ of its total imports from Brazil. Guyana, being a founder member of CARICOM (Caribbean common market), is in a position to further the relationship between Brazil and CARICOM.
- 1.4 It is envisioned that Guyana's integration with Brazil has the possibilities to open up foreign markets to Guyana's exports, lowering transportation costs while at the same time, increasing competitiveness through increased economies of scale, and also, increasing the flexibility of labor supply which will result in less unemployment.
- 1.5 Guyana is a nation of approximately 766,000 persons residing within a territory of 215,000 square kilometers. The country possess a rich natural resource base, with more than 80 percent of each territory covered in largely intact lowland and sub-montane tropical forest, and dozens of moderate to large unaltered rivers extending from the southern interior to the north. The rich biodiversity of this area includes rare and endemic plant species and endangered species of wildlife.
- 1.6 The road currently leading from Guyana to the Brazilian border in the south commonly known as the Linden – Lethem road bisects the Iwokrama International

¹ Feasibility and Preliminary Design Report (2012), SNC Lavalin: Containers from Amazonas and Roraima to an Atlantic port takes 5 days and 6 days respectively and would take 2 and 1 day(s) should a port in Guyana be used.

² Instituto Brasileiro de Geografia e Estatística (2009): The Manaus Port in 2009 handled 1,580,802 tons of import/export cargo from Amazonas and 32,008 tons from Roraima.

³ Private Sector Trade Note (2009), CARICOM Office of Trade Negotiations: CARICOM 2009 exports to Brazil were US\$196,232,000 and imports were US\$3,179,680 which represents 5% of the total exports.

Rainforest Programme (IIRFP) reserve, a Commonwealth-supported experimental forest management project and one of only two legally protected areas in Guyana. Apart from being the site of a number of protected species under the Convention of International Trade in Endangered Species (CITES) of Wild Fauna and Flora, such as the Arapaima fish (*Arapaima gigas*) and the Striped Owl (*Asio clamator*), the Reserve and other areas contain a number of archaeological sites such as petroglyphs that require further exploration. The improvement of the Linden – Lethem road has been the subject of intermittent discussion and study over many years.

- 1.7 The studies for the Guyana – Brazil Land Transport Link and Deep Water Port project will examine various land transport modality and alignment options available for the different choices of port sites in the estuaries of the three Essequibo, Demerara or Berbice rivers or Guyana's Atlantic coast. Once this project is implemented there will be a significant increase in the accessibility of the country's hinterland for development and economic activity.

II. CURRENT SITUATION

- 2.1 The State of Roraima is situated on the frontier of Guyana and Venezuela and has a population of 456,000. The principal disadvantage of its location is that it is in the interior of the country and far from the markets which are principally in the south of Brazil (São Paulo, Rio de Janeiro). Consequently, the State is faced with high transportation costs.
- 2.2 Roraima is however, close to the markets of its neighbours – Venezuela and Guyana. Most of the principal ports for transporting produce from Roraima (e.g. Puerto Cabello, Maracaibo, Ciudad Bolívar, Itacoatiara) are between 836 and 1614 km from Roraima's Capital, Boa Vista. Georgetown, however, is approximately 550 km from the Boa Vista and is therefore of primary interest for logistic reasons as there would be very significant distance (and possibly cost) savings via the Guyana route.
- 2.3 According to the 2012 feasibility study⁴ of the Linden Lethem road, a paved asphalt road would be the road improvement option that could see potential flows of imports and exports from the State of Roraima and Manaus being diverted to Port Georgetown.
- 2.4 The road upgrade would improve transportation between Guyana and Brazil with a view to promoting integration, trade and cultural exchange, boost economic development particularly in Roraima and Guyana. These would be facilitated through the export/import of goods to North America, Central America and the Caribbean through port services available in Guyana and create a north-south transportation corridor to help integrate northwestern Brazil with the capital of Guyana.
- 2.5 The improved road link would facilitate exports/imports to and from Roraima and Manaus through the Port in Georgetown or through a proposed Deep Water Port in New Amsterdam Berbice which is being contemplated by the Government of Guyana.

⁴ SNC Lavalin and Vikab (Guyana) Ltd (2012) Consultancy Services For Georgetown-Lethem Road Project Feasibility Study, Final Feasibility And Preliminary Design Report, Volume I, Georgetown.

- 2.6 Virtually all the export and import movements of Manaus and Boa-Vista are containerized. The trend growth of Manaus' deep sea container traffic between 1998 and 2012 was just under 7% a year. It is estimated that this growth will continue.
- 2.7 While the distance savings by road would be greater for Boa Vista than for Manaus to an Atlantic port, both could enjoy time and cost saving by utilizing the Guyana route for exports/imports to and from these cities.
- 2.8 According to the recent feasibility study⁵ for the Linden Lethem road, the time taken for a 40ft container to travel along the Amazon River from Manaus to a port in Brazil for further transshipment to Caribbean or North America is 3 days more than it would take using the Linden Lethem corridor. The river route is also estimated to cost 50% more than the Guyana land route.
- 2.9 Roraima's main international exports are processed timber products, animal hides and derivatives, and soya which has grown rapidly in importance. Technology has been developed to maximize the production of rice, soya, corn, sunflower and fruits.
- 2.10 The zoning of the Roraima is currently in its final stages and it is anticipated that three (3) million hectares of land would be available for agricultural production. This could present great opportunities for creating a production chain in the Caribbean, but the infrastructure has to be first developed.

III. DESCRIPTION OF CURRENT ROAD CORRIDOR AND PORT

- 3.1 The 453.7 km existing road between Linden and Lethem is almost entirely unpaved and forms part of a 558 km potential through-route from the Brazilian border at Lethem to Georgetown.
- 3.2 The Georgetown-Linden section (105 km) is a paved road with two lanes except for a short segment with 4 lanes on the outskirts of Georgetown, which is in good condition. From the Demerara Harbour Bridge to the Soesdyke junction (27 km), the road is a single carriageway asphalt pavement, approximately 6m wide. The land use is mainly urban to peri-urban with typical ribbon development, less than a kilometer deep. On both sides of the road there is a mixture of residential, religious, commercial and industrial activities. In places, the road reserve is less than 2 meters as a result of encroachment from small shops and other premises.
- 3.3 From the Soesdyke junction to the Linden junction (74 km) the road is a single carriageway paved road, approximately 7m wide. From just before the Soesdyke junction there is a rapid transition from peri-urban to rural land use. This comprises intermittent patches of subsistence farming in mixed degraded forest on relatively infertile soil, which continues to just before Linden where peri-urban land use predominates for approximately 3 km. Crops include cassava, mango and papaya trees. In addition, small-medium scale sand mining is carried out on both sides of the road for about 20 km from the Soesdyke junction. In addition, charcoal burning remains a major form of occupation for occupants along the Linden-Soesdyke highway.

⁵ SNC Lavalin and Vikab (Guyana) Ltd (2012) Consultancy Services For Georgetown-Lethem Road Project Feasibility Study, Final Feasibility And Preliminary Design Report, Volume I, Georgetown.

- 3.4 The Linden-Lethem section extends from the road junction just west of the Wismar Bridge (Linden) at the northern end to Lethem at the southern end, at the point where the access road to the new Takutu Bridge and the Brazilian border begins. The road can be sub-divided as follows:

Table 1

Section	Length (km)	Surface Type
Linden - Mabura Hill	2.58	DBST
Linden - Mabura Hill	122.45	Unpaved
	125.03	
Mabura Hill – Kurupukari	107.64	Unpaved
Kurupukari – Annai	102.26	Unpaved
Annai – Lethem	118.80	Unpaved
Total Length	453.72	

- 3.5 The following road condition descriptions are based on observations done on the Linden-Lethem road during the pre-feasibility study in March 2008.
- 3.6 The section from Linden to Mabura Hill begins with a failed DBST surfaced road (9.6 meters width) and continues as an unpaved laterite surfaced road with an average formation width of 15 meters. The condition of this unpaved section is twofold. The riding quality for approximately 90 km is very poor with average speeds of 35 km/hr while the remaining 32 km is in good condition with average travel speeds of 60 km/hr.
- 3.7 The section from Mabura Hill to Kurupukari is an unpaved laterite and white sand/sand clay surfaced road with an average formation width of 6 meters. The first 25.75 km is in relatively good condition with average travel speeds of 60 km/hr. The remaining 82.4 km is in poor condition, inundated with large potholes, with average travel speeds of 30 km/hr. The alignment is poor owing to numerous sharp bends and blind corners. This section of road is a forestry type road which has replaced the engineered road because of the collapse of a bridge on the engineered road a few years ago. At Mabura Hill (226 km) the road passes through the Demerara Timber Limited sawmill complex and through the its timber concession for the next 109 km until just before Kurupukari.
- 3.8 At Kurupukari, there is a toll ferry which crosses the Essequibo River and operates during day light hours and upon request. Immediately south of the ferry crossing one enters the Iwokrama International Centre for Rain Forest Conservation and Development, one of two protected areas in the country, and the road passes through it for some 75 km. At km 418 there is a marked transition from forest to open savannah, namely the Rupununi Savannah. The Kurupukari to Annai section is an unpaved laterite surfaced road with an average formation width of 9.3 meters. However this width is reduced to 6.8 meters for much of the length due to encroaching vegetation. The surface is in relatively good condition with average travel speeds of 65 km/hr.
- 3.9 The Annai to Lethem section is an unpaved laterite surfaced road in fair to good condition, permitting average travel speeds of 50 km/hr. This section has however been subject to seasonal flooding. There are a number of sharp bends and blind

corners around the hills which impair site distance over about 16 km of the section. Some 20 km before Lethem the topography changes from flat to gently rolling hills with periodic occurrences of natural laterite on the crest of the hills. The land use for the last 2.5 km before entering Lethem is peri-urban and the survey of the road ended at km 553 in Lethem.

- 3.10 There are 51 bridges and 135 culverts on the Linden-Lethem road, distributed as follows:

Table 2

Section	No. of bridges	No. of culverts
Linden - Mabura Hill	1	5
Mabura Hill – Kurupukari	14	13
Kurupukari – Annai	22	19
Annai – Lethem	14	98
Totals	51	135

- 3.11 The bridges along the Linden-Lethem road are principally of timber construction and are in varying degrees of disrepair, as are the culverts.
- 3.12 The Port of Georgetown (PTG) supports a complex mixture of activity and is not simply a place where ships and cargo are handled. The extent of the activity that the port supports and generates is directly related to the level or volume of business it handles. It is worthwhile noting from the point of view of identifying the expected economic benefits from the improvement of the road and subsequent use by Brazilian business can generate, the PTG performs five basic functions⁶:
- 3.13 A nodal function: a seaport is essentially a nodal point in logistics networks, a link in a chain where cargo flow change mode of transport. To fulfill this nodal function, a seaport must have adequate access (maritime and landside) and port-internal infrastructure
- 3.14 A business location function: industrial companies, logistic service providers and cargo handling companies settle in port areas to produce, add value to, process, store and handle goods. Managing sites for these businesses forms a second port function
- 3.15 A nautical function: the third function concerns the performance of public nautical tasks to ensure an efficient, safe, clean and secure handling of ships
- 3.16 A community function: a seaport does not exist in isolation from the community (city, region, country) in which it is embedded. The fourth function of a seaport is to add value to that wider community. Ports also take part in the territorial development of Member States and the EU
- 3.17 Ports often also have a **borderline** function, with consequent implications regarding customs, security, health etc.

⁶ ESPO, 2006, Recommendations for the consultation process on European seaport policy, <http://www.espo.be/downloads/archive/b6b502a5-e118-47fa-a7f5-047f7ae8b709.pdf>

3.18 In a 1998 Study⁷ it was estimated that the size of the vessels needed to meet the shipping service needs of the Brazilian traffic will require a number of major changes to be undertaken to improve port access by sea and by land, development of berths, storage areas, security services, customs facilities, road and parking access, etc. The size of the ships that would need to be accommodated to handle the expected Brazilian trade would include the following:

- Regional feeder services operating within the Caribbean Basin using small geared ships ranging from between 100-300 TEUs, including non-containerized ships serving volume ports
- The direct services connecting the Caribbean Basin with ports on the South and East Coast USA including for example: the ports of Houston, Florida Everglades, and Baltimore. Ships on this trade would include multi-purpose, geared with an equivalent capacity of about 350 TEUs and depending on the demand and port and terminal access constraints up to 600 TEUs
- Europe and Far East Direct Service are using relatively large geared and gearless ships of about 1,000 TEUs

IV. TIMELINE OF KEY EVENTS IN ROAD'S HISTORY

- 4.1 There has been a long history of discussions, agreements, studies and bilateral initiatives relating to the improvement of the road. However the most pertinent are summarized below.
- 4.2 1976-78: The Ministry of Works and Hydraulics constructed a gravel road between Wismar (Linden) and Mabura Hill.
- 4.3 1980s: Demerara Woods Ltd. undertook to open up a 60 km primary logging trail from Mabura Hill towards Kurupukari.
- 4.4 1981: The Brazilian firm Gutierrez / PRODEC carried out an initial feasibility study of the road with economic, financial and technical proposals for its completion. Although the Brazilian Government indicated that the study provided the basis for a financing proposal within three months, no formal proposals were ever received.
- 4.5 1981-82: Home Oil upgraded the 55 km section of the road north from Lethem. This was later further upgraded as far as Point Ranch by the Brazilian company Parapanema.
- 4.6 1987 (November): The Ministry of Communications and Works published a Project Dossier for the Guyana – Brazil road.
- 4.7 1988: Formation of the Trail to Rupununi Association, which had as its aim the establishment of a fair-weather trail from Mabura Hill to Lethem to provide overland access to the Rupununi. Some progress was made in clearing a trail and re-establishing bridges.

⁷ IADB, 1998, Examination of Major Alternatives for the Establishment of a Deep-Water Port in Guyana, Guyana, IDB.

- 4.8 1989: A technical and economic feasibility study for upgrading the road was carried out by TecnEcon for the Secretariat of the Caribbean Community with financing from the Commission of the European Communities.
- 4.9 1989 (November): The Brazilian firm Paranapanema was awarded the contract for Phase 1 which involved:
- a. survey and design from Lethem to Kurupukari (224 km)
 - b. upgrading the Lethem-Annai section (125 km)
 - c. constructing the Annai-Kurupukari section (125 km)
 - d. design and supply of river crossing facilities at Kurupukari on the Essequibo River
- 4.10 Phase 1 was completed in August 1991.
- 4.11 1994 (October – December): An environmental impact assessment of the road completion proposals was commissioned by the Ministry of Public Works, Communications and Regional Development. It was undertaken by Environmental Resources Management with financial assistance from the World Bank and completed in April 1995. The study evaluated the direct and indirect environmental and social impacts of construction and operation of 3 improvement options (forest road, all-weather gravel road and paved road) on the existing alignment, and the possible realignment of one section between Mabura Hill and Kurupukari (101 km).
- 4.12 2000: A detailed technical and economic feasibility study financed by the European Union was undertaken by ADK – Alexander Gibb. This study considered 3 improvement options: (i) current design with minimum earthworks, (ii) 10 m all-weather gravel road; and (iii) 7 m paved road. Detailed estimates were made of potential traffic generation and developmental benefits in the Rupununi and potential Brazilian traffic generation and diversion. The study also considered that Guyana's port facilities did not pose a problem for potential Brazilian container traffic using the road.
- 4.13 2002 (May): Mekdeci Machinery and Construction Company (MMCC) was awarded the contract to operate the Kurupukari Ferry over the Essequibo River and charge tolls. Proceeds from toll revenue were supposed to contribute to road maintenance funds for the MMCC sections, but low traffic levels limited this contribution.
- 4.14 2005 (September): A task force appointed by the Prime Minister reviewed the arrangements for the continued rehabilitation and maintenance of the MMCC contracted sections between Kurupukari and Lethem, some of which had suffered severe flooding following the exceptional rainfall experienced at the time. Road conditions in the MMCC sections were found to be fair to satisfactory, but the "Hunt Oil" sections between Lethem and Toka, which were prone to flooding, were deemed to require rehabilitation. A total of 39 bridges between Kurupukari and Lethem were found to require rehabilitation.
- 4.15 2006: The Guyana Transport Sector Study, using data from the 2000 ADK / Gibb feasibility study, evaluated three improvement options:

- a. minimum earthworks and widening to an 8m gravel road
 - b. realignment and widening to 10m gravel standard, with concrete bridges
 - c. realignment and widening to 14m and paving, with concrete bridges
 - d. None of these was found to be economically feasible
- 4.16 2008: A Pre-Feasibility Study of the Georgetown-Lethem road was conducted by international consultants Mott MacDonald Limited in association with Cemco Inc. of Guyana. Four alternatives for improving the Linden-Lethem road were considered, and the improvement costs and annual maintenance costs for each were determined. An economic appraisal was carried out for the 4 improvement alternatives with an appraisal period of 2013-2032. The results yielded an economic internal rate of return (EIRR) of 15.2% for Alternative 3 (improvement to paved road (DBST) standard with replacement of the existing timber bridges with steel bridges), when the road was analyzed as a whole with the inclusion of Brazilian diverted traffic. The potential inclusion of a bridge over the Essequibo River at Kurupukari was not considered in the pre-feasibility study. However, highly provisional estimates suggest that such an inclusion would result in an EIRR of 13%-14% for Alternative 3.

V. SUMMARY OF MOST RELEVANT STUDIES OF THE ROAD

- 5.1 The improvement of the Linden – Lethem road has been the subject of intermittent discussion and study over many years. The following studies are the most relevant:
- a. 1989 TecnEcon-Gibb Feasibility Study funded by the European Union
 - b. 1995 Environmental and Social Impact Report funded by the World Bank
 - c. 2000 ADK-Gibb Feasibility Study funded by the European Union
 - d. 2006 GOPA Transport Sector Strategy Study funded by the European Union
 - e. 2008 Mott MacDonald - CEMCO Pre-Feasibility Study funded by the Inter-American Development Bank
 - f. 2012 SNC Lavalin: Feasibility Study funded by the Inter-American Development Bank (incomplete)
- 5.2 The first three studies of the road started out from a situation where the southern half of the road was in extremely poor condition and virtually impassable during significant parts of the wet season.
- 5.3 The 1989 TecnEcon study suggested that the rehabilitation of the section of the road between Mabura Hill and Lethem (329 km) to good 6m gravel standard might be economically feasible, but emphasized the need for further engineering and economic study to determine roadworks costs more accurately. It also pointed out the potential for diversion of Brazilian transit traffic to the route.
- 5.4 The 1995 Study recommended upgrading the Mabura Hill – Kurupukari section of the road to a forestry road standard. No immitigable environmental impacts were foreseen.
- 5.5 The 2000 ADK-Gibb study recommended a partly re-aligned 10m gravel road amongst other things, but, with an internal rate of return of 10.6%, the project was not

economically feasible assuming a feasibility threshold of a 12% internal rate of return.

- 5.6 The most recent and possibly the most relevant study is the Pre-Feasibility Study undertaken by Mott Macdonald – CEMCO in early 2008. This study defined the following four improvement options for economic appraisal:
- a. Alternative 1 – improvement to engineered gravel standard and replacement of bridges with timber bridges
 - b. Alternative 2 – improvement to engineered gravel standard with replacement of existing timber bridges with steel bridges
 - c. Alternative 3 – improvement to paved road (DBST) standard with replacement of the existing timber bridges with steel bridges
 - d. Alternative 4 – improvement to paved road standard (DBST) and replacement of exiting timber bridges with concrete bridges
- 5.7 An assessment of exiting traffic on the road was based on the results of a traffic count at the northern end of the road, a detailed analysis of the ferry records at Kurupukari and an analysis of the records of cross-border traffic near Lethem. These analyses suggested that traffic using the road was significantly higher than had been assumed in earlier studies, probably in response to improvements in the road's condition in recent years. Forecasts of potentially divertible Brazilian transit traffic were based on updating the earlier forecasts in the 2000 feasibility study. The economic appraisal of the alternative improvement options indicated that Alternative 3 (paved road with steel bridges) costing US\$117.29 million would be economically feasible on the basis of attracting significant volumes of Brazilian diverted traffic. In the absence of Brazilian diverted traffic, only improvement of the northernmost section to Mabura Hill was shown to be economically justified.

VI. OBJECTIVES

- 6.1 The primary objectives of the Economic and Financial studies can be summarized as follows:
- The main objective of the study is to determine the economic and financial feasibility of the project as well as provide financing options. The structuring of the financing for the project is of great importance since Guyana is unlikely to be able to afford the venture as a sovereign project given the anticipated cost of the project and its current economic situation. The alternatives to be investigated should include a complete project catering for Brazilian traffic, a phased construction based on traffic growth scenarios, and staged or sectional construction based on locally generated traffic alone
 - The consultancy entails modeling/forecasting to determine the level of economic output and rate of return from the “connectivity” which the establishments of these links are expected to create amongst Brazil, Guyana, South America and the Caribbean. The financing of the project would be analyzed in detail looking at incremental infrastructure development versus one-off development for the various alternative combinations of land transport

and port identified in Engineering Studies. The economic and financial models must utilize the demand and cost information derived in the Market Study, Preliminary Engineering Studies as well as the mitigation costs identified in the Environmental and Social Impact Assessment

- The structuring of the operation to attract the interest of investors is key for the realization of the project. This would involve the examination of various commonly used Public Private Partnerships methods for financing such as, concessions and toll arrangements and Build Own Operate Transfer, and the recommendation of the most appropriate method

VII. ACTIVITY TO BE COMPLETED / METHODOLOGY

- 7.1 In order to achieve the objectives of the land transport study aspect of the assignment, specific activities to be completed include, but are not limited to, the following:

Economic analyses

- 7.2 Identification and quantification of all significant economic costs and benefits associated with the land transport and port project. The economic analyses should be carried out based on economic costs and the results should be expressed as a minimum in terms of the following economic feasibility indicators:
- Net Present Value (NPV) using a discount rate of 12%
 - Economic Internal Rate of Return (EIRR)
 - NPV / Investment Cost Ratio using a 12% discount rate
- 7.3 The economic analysis is especially important for the option which seek to justify sections of road improvement based on local traffic alone, since in these cases the country could seek financing for these should private financing not be viable.

Financial feasibility

- 7.4 The economic feasibility study will need to be accompanied by a financial feasibility study based on assumptions about the nature of potential Public-Private Partnership (PPP). The financial feasibility study should be aimed at measuring and evaluating the potential financial aspects of the economically most feasible option. The financial evaluation should be based on total financial costs and potential revenues using alternative assumptions about possible toll rates and tariff structures. Consideration would also be given to the financing of the project in terms of capital structure, debt equity ratio, projected cash flow and profitability.
- 7.5 The results of the financial study should be expressed in terms of the financial internal rate of return (FIRR) Financial First Year Return (FFYR), financial Net Present Value (NPV) and any other measures considered to be relevant. The discount rate to be used in the financial NPV calculations should be a weighted average cost of capital after tax (WACC). Both the economic and financial appraisals should be carried out at constant prices. A sensitivity analysis should be conducted for time delays in project completion, low initial demand, increases in cost, adverse economic conditions and the like.

- 7.6 The financial evaluation of the project would develop proposals for its financial feasibility and viability as a PPP project. The Consultant should create an software based financial Model (MS Excel, EVIEWS etc.) to reflect PPP project structure keeping in view the sources of funding, financial soundness / fiscal sustainability. The model will represent the cost of delivering the preferred solution/option through a PPP arrangement. Financial Model must also include an evaluation of the impact of the project on public sector/government finances.
- 7.7 The model should represent the full cost of delivering the projects, as well as the risks associated with the project. The financial model must be robust and flexible enough to test feasibility of the project. The model must instill integrity in the financial robustness of the project by clearly demonstrating viability and affordability under the recommended transaction structure.
- 7.8 In developing the Financial Model, the following steps are to be ensured:
- Technical definition of the project options
 - Incorporate output specifications from the Preliminary Engineering Study for quality of services and performance standards for engineering works to be met by the private party and to be formalized as a service level
 - Incorporate the findings of the Market Study to assess the potential commercial viability of associated sources of revenue which could be derived from the project being in place and could be used to add benefits/revenue to the project. The Consultant is required to fill any gaps in data from the Market Study
 - Determine appropriate methods of involving the private sector in order to improve the efficiency and reduce the cost and capital investment
 - Identify Capital Expenditure (CAPEX) requirements, Operational Expenditure (OPEX), maintenance and other direct costs. Identify indirect costs
 - Revenue Analysis from all possible sources and their projections and its analysis including toll fee level recommendations and keeping various commercial options
 - Financing structure including equity, loan and subsidies portions
 - Debt servicing and amortization scheduled, based on international and Brazilian commercial/investment Banks debt financing including the Interamerican Development Bank (IDB) private sector window
 - Assumptions made regarding inflation rate, discount rate, depreciation and budget availability must be explained
 - List all Model Assumptions
 - The Base Case model and financial statements must be created that takes into account the operating costs capital costs and revenues anticipated for this project

- The risk adjusted financial model
- Undertake various sensitivity analysis varying, cost, timing, revenues, traffic, cost of capital etc.
- Demonstrate Project Viability; to be assessed taking into account affordability to users and financially viable to investors
- Feasibility study must also identify appropriate and comprehensive collateral security arrangements required for making the project bankable, for example; in some cases there may be a need for Viability Gap Financing. In these cases a clear justification for VGF along with the quantum of VGF required must be part of the financial analysis
- The financial feasibility shall also include analysis if the project is not viable or bankable on the BOOT or BOOT + VGR funding then the BT or Annuity need to be considered

Project structure, timing and phasing

- 7.9 Undertake a review of Guyana's existing legislation as it related to PPP, concession arrangement, land transfers and ownerships and the like. Comment on the enabling environment in the country and make recommendation to improve this environment where necessary, these recommendations could be at the policy level of enactment of legislation.
- 7.10 A proposed structure of the project should be devised demonstrating the relationship between the institution, Private Party SPV, lenders, shareholders, suppliers, subcontractors and other stakeholders. This planned structure must incorporate the funding structure, appropriate equity returns and the cost and key terms of debt funding. All assumptions must be clearly stated as these will directly affect the cost of capital for the project.
- 7.11 The economic and financial analyses should be used to determine potential optimum timing of the most feasible project and its phasing. A detailed timeline would be prepared specifying the steps that would be required, the sequencing, timing, cost, responsible party etc. in order to implement the feasible (economic and financial) project options.

VIII. CHARACTERISTICS OF THE CONSULTANCY

- 8.1 The Consultants will be responsible for carrying out the activities described in these Terms of Reference and delivering the reports identified in section IX. The Consultants will propose a team comprised of a Team Leader, a Public Private Partnership Specialist, a Planner and a Logistics/Trade Specialist with the characteristics identified below. Additional members of the team may be proposed by the Consultants. The duration for the study would be 16 weeks.

Team Leader

- 8.2 The Team Leader should have experience in international transport operations with private financing. The Team Leader should hold a Master's degree in Economics or related field and have at least 10 years of working experience in his/her area of

specialization. He/She should have experience in coordinating multi-disciplinary teams and technical report writing. Experience in Brazil and particularly in the Caribbean will be valued.

PPP Specialist

- 8.3 The Public Private Partnership Specialist should hold a Master's degree in economics, law, engineering or related field and have at least 10 years of working experience in the transport sector. He/She should have extensive knowledge of PPP models and private financing leveraging. The specialist should be confident using relevant modeling techniques. Experience in Brazil and particularly in the Caribbean is essential.

Planner

- 8.4 The Planner should hold a Master's degree and should have at least 10 years of working experience in his/her area of specialization. The specialist should have experience in zoning for optimum use and value of land resources and be familiar with PPP schemes which require other incentives/concessions apart from the main service to be provided.

Logistic/Trade Specialist

- 8.5 The Trade Facilitation Specialist should have sound understanding of border management principles, security and risk management, and trade. The specialist should hold a Master's degree and should have at least 10 years of working experience in his/her area of specialization. Experience in Latin America and particularly in the Caribbean will be valued.
- 8.6 The consulting services shall be performed at the Consultants' place of business, in Guyana and Brazil where necessary. Technical and clerical support, supplies and equipment necessary to accomplish tasks are to be provided by same. The Consultants shall assume all costs related travel and to the activities foreseen in these Terms of Reference and in agreement with the contract regulating these consulting services.

IX. REPORTS, OUTPUTS AND PAYMENTS

- 9.1 The progress and findings of the assignment will be presented in the following reports:
- Inception Report. This should set out clearly and concisely the approach to be adopted by the consultant to meet the objectives of the study. It shall contain the finalized schedule and workplan for the implementation of the consultancy, which will update the schedule proposed in the consultant's technical proposal for bidding
 - Financial Model and Data. This report will include the architectural detail of the designed financial model including assumptions and calibration, and the identified raw data for the analysis

- Draft Final Report. This report will include the analysis, results and preliminary recommendations of the Economic and Financial feasibility studies and the Project structure, timing and phasing
- Final Report. This report will include the analysis, results and recommendations of the Economic and Financial feasibility studies and the Project structure, timing while addressing the comments received from the IDB
- All reports shall be presented in one printed copy (including all appendices, drawings, tables and graphs) and in electronic form (editable and non-editable formats). The Consultant shall supply six additional printed copies of the Final Report (including all appendices, drawings, tables and graphs) and in electronic form (editable and non-editable formats)

9.2 The outputs / deliverables of the study shall be presented as follows:

- Inception Report shall be submitted to the IDB two weeks after the commencement date of the contract.
- Financial Model and Data Report shall be submitted not later than 6 weeks after the commencement date of the contract.
- Draft Final Report shall be submitted to the IDB at the end of 12 weeks after the commencement date of the contract
- Final Report shall be submitted to the cat the end of 16 weeks after the commencement date of contract (including 2 weeks for receipt of comments and 2 weeks to make any necessary changes following comments)

Payments

9.3 The payments will be done according to the following schedule:

- 15% upon signing of the contract
- 15% upon submission of acceptance Inception Report
- 20% upon submission of the Financial Model and Data Report
- 25% upon submission of the Draft Final Report
- 25% upon approval of the Final Report

X. COORDINATION

- 10.1 The IDB is the executing agency for the Consultancy on behalf of the Government of Guyana. The Consultant shall report to the IDB project Team Leader who will be the administrator of the contract. The IDB Project Team and Ministry of Public Works will have a role entailing the reviewing and evaluation of the outputs and approving the study.

- 10.2 The MPW will facilitate the issuing of any permits required for the Consultant to carry out their duties and make available all relevant reports, documents, maps and data.

Project: Guyana – Brazil Land Transport Link and Deep Water Port
GY-T1098

Period comprised in this Procurement Plan: From November, 2013 to October, 2015

Ref. No. ¹	Description of and category of procurement contract	Estimated cost in (US\$ thousand)	Procure-ment method ²	Review (ex ante or ex post)	Source of financing and percentage		Prequali-fication ³ (Yes/No)	Estimated Dates		Status ⁴ (pending, in process, awarded, cancelled)	Comments
					IDB %	Local / Other %		Publication of specific procurement notice	Completion of contract		
	GOODS										
	WORKS										
	NON-CONSULTING SERVICES										
	CONSULTING SERVICES										
	<u>Component 1</u>										
CS1	Market Study	200	QCBS	ex ante	100%		No	November, 2013	June, 2014	Pending	
	<u>Component 2</u>										
CS2	Engineering Studies	600	QCBS	ex ante	100%		No	March, 2014	January, 2016	Pending	
	<u>Component 3</u>										
CS3	Social and Environmental Studies	450	QCBS	ex ante	100%		No	March, 2014	January, 2016	Pending	
	<u>Component 4</u>										
CS4	Economic and Financing Studies	200	QCBS	ex ante	100%		No	January, 2015	January, 2016	Pending	
	<u>Technical Supervision and Evaluation</u>										
CS5	Trade and Logistic Specialist	15	QCNI	ex ante	100%		No	November, 2013	June, 2014	Pending	
CS6	Public Private Partnership Specialist	25	QCNI	ex ante	100%		No	March, 2014	January, 2016	Pending	
CS7	Evaluation Specialist	10	QCNI	ex ante	100%		No	Dec, 2014	February, 2016	Pending	

¹ If there are a number of similar individual contracts to be executed in different places or at different times, these can be grouped together under a single heading, with an explanation in the comments column, indicating the average individual amount and the period during which the contracts would be executed. For example: an education project that includes school construction might include an item labeled "School Construction" for an estimated cost of US\$20 million and an explanation under the Comments column such as this: "This item encompasses some 200 contracts for school construction averaging US\$100,000 each, to be awarded individually by the participating municipal governments over a three-year period between January 2006 and December 2008."

² **Goods and Works:** ICB: International competitive bidding; LIB: limited international bidding; NCB: national competitive bidding; PC: price comparison; DC: direct contracting; FA: force account; PSA: Procurement through specialized agencies; PAs: Procurement agents; IA: Inspection agents; PLFI: Procurement in loans to financial intermediaries; BOO/BOT/BOOT: Build, own, operate/build, operate, transfer/build, own, operate, transfer; PBPP: Performance-based procurement; PLGB: Procurement under loans guaranteed by the Bank; PCP: Community participation procurement; **Consulting Firms:** QCBS: Quality- and cost-based selection; QBS: Quality-based selection; FBS: Selection under a fixed budget; LCS: Least-cost selection; CQS: Selection based on the consultants' qualifications; SSS: Single-source selection; **Individual Consultants:** QCNI: Selection based on comparison of qualifications of national individual consultants; QCII: Selection based on comparison of qualifications of international individual consultants.

³ Applicable only to Goods and Works in case the new Policies apply. In the case of previous Policies, it is applicable to Goods, Works and Consulting Services.

⁴ Column "Status" will be used for retroactive procurement and when updating the procurement plan.