

JAMAICA HIGHWAY 2000 CASE STUDY



Caribbean Development Bank

© **Caribbean Development Bank 2017**

ISBN: 978-976-96037-2-1

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording or otherwise without the permission of the publisher.

Published by: Caribbean Development Bank

Printed by: Caribbean Development Bank

The views expressed in this book, as well as any errors of commission, or omission, are the sole responsibility of the authors, and do not necessarily reflect the opinion of the Caribbean Development Bank.

Acknowledgements

This publication was prepared by the Public-Private Partnerships (PPP) Regional Support Mechanism (RSM) of the Caribbean Development Bank (CDB); and was written by S. Brian Samuel, Head of Regional PPPs, and Albert Gillings, Operations Officer (Civil Engineer). The case study is based on taped interviews with key personnel from public and private sector agencies involved in the project, all of whom are listed in the Bibliography.

The document benefited from a review seminar held at CDB as well as inputs from Ivan Anderson, Managing Director, National Road Operating Construction Company Limited (NROCC), Denise Arana, Manager, PPP Unit, Development Bank of Jamaica Limited (DBJ), Guillaume Allain, Managing Director, Trans Jamaican Highway Limited (TJHL) and Kingsley Thomas, Consultant; all of whom provided useful comments on the draft. Financial data was provided by NROCC and the Ministry of Finance, Debt Management Branch.

1.	Introduction	1
2.	Genesis	3
2.1	An idea is born	3
2.2	Leap of faith	4
3.	East-West Highway	5
3.1	Project team and institutional structure	5
3.2	Prequalification	6
3.3	Toll Road Act 2002	6
3.4	The first bid	7
3.5	Restructuring the project	8
3.6	Best and final offer (BAFO)	8
3.7	Bid award	8
3.8	Project structure and risk allocation	9
3.9	Project financing on the East-West Highway	10
3.10	Traffic levels on the East-West Highway	11
3.11	Refinancing from Multilateral Development Banks	13
3.12	Social and environmental issues	14
3.13	Lessons learned on the East-West Highway	18
4.	North-South Link	20
4.1	Challenges of the North-South Link	20
4.2	Mount Rosser Bypass	20
4.3	The Chinese make an offer	20
4.4	The CHEC land deal	21
4.5	Project financing on the North-South Link	22
4.6	The Contractor-General gets involved	23
4.7	Social and environmental issues	23
4.8	Early operating results	25
4.9	Lessons learned on the North-South Link	27
5.	Lessons for the Future	28
5.1	Motivations and priorities	28
5.2	Social and environmental safeguards	29
5.3	Financing challenges	29
5.4	Toll rates and willingness to pay	30
5.5	Benefits of Highway 2000	31
5.6	Fiscal impact	32
5.7	Looking back, looking forward	33
5.8	Conclusion: Is Highway 2000 a “good” project?	34

References	36
------------	----

TABLES

Table 1: Financing from Multilateral Development Banks	14
Table 2: Summary of Land Acquisition for Phase 1A	14
Table 3: Toll Rates on East-West Highway	30
Table 4: Toll Rates on North-South Link	31
Table 5: Total Costs of Highway 2000	33

FIGURES

Figure 1: Map of Highway 2000	2
Figure 2: NROCC Organisation Chart	4
Figure 3: Project Structure on the East-West Highway	9
Figure 4: Risk Allocation on the East-West Highway	10
Figure 5: Financing Structure of the East-West Highway	12
Figure 6: Traffic on East-West Highway 2003 – 2017	13
Figure 7: East-West Highway Project Timetable	17
Figure 8: Financing Structure of North-South Link	22
Figure 9: North-South Link Project Timetable	26
Figure 10: Traffic on North-South Link 2016-2017	26
Figure 11: Timetable of Phases One and Two	34

AFD	Agence Française de Développement
ASF	Autoroutes du Sud de la France SA
BAFO	Best and Final Offers
BOOT	Build-Own-Operate-Transfer
CDB	China Development Bank
CHEC	China Harbour Engineering Company Ltd
CINTRA	Concesiones de Infraestructuras de Transporte
CPI	Consumer Price Index
DBJ	Development Bank of Jamaica
EIAs	Environmental impact assessments
EIB	European Investment Bank
FDI	Foreign Direct Investment
GOJ	Government of Jamaica
IDB	Inter-American Development Bank
IFC	International Finance Corporation
IDF	Intensity-Duration-Frequency
JIO	Jamaican Infrastructure Operator
JNSHC	Jamaica North-South Highway Company
KCT	Kingston Container Terminal
KMA	Kingston Metropolitan Area
MDBs	Multilateral Development Banks
NCC	National Contracts Commission
NEPA	National Environment and Planning Agency
NROCC	National Roads Operating and Construction Company Limited
OCG	Office of the Contractor-General
PCAC	Portmore Citizens Advisory Committee
PPP	Public-Private Partnership
REOI	Request for Expressions of Interest
RFQ	Request for Qualification
RBTT	Royal Bank of Trinidad and Tobago
Proparco	Société de Promotion et de Participation pour la Coopération Economique
TJH	Trans-Jamaican Highway Ltd



INTRODUCTION

Highway 2000 is a bold, transformative Public-Private Partnership (PPP) that impacts the lives of hundreds of thousands of Jamaican citizens on a daily basis. The first phase, the East-West Highway, was an international tender in 2001, which was won by French contractor Bouygues Travaux Publics in partnership with toll operator Vinci. The second phase, the North-South Link, originated in 2011 from an unsolicited proposal from China Harbour Engineering Company Ltd (CHEC). Long-term funding was provided by regional commercial banks, multilateral development banks and the China Development Bank (CDB); three funding sources with radically different motivations and methods.

At a total cost of USD1.3 billion, Highway 2000 remains the largest project ever implemented in Jamaica, and signalled that the country has the capacity to implement large, complex projects of its kind. As further demonstration of the country's ability to engage in large complex undertakings, the first phase of the Highway was followed in 2003 by the privatisation of Sangster International Airport; and the opening of the North-South Link in March 2016 was followed by the sale of Kingston Container Terminal (KCT) to CMA-CGM, the world's biggest shipping line.

The purpose of this case study is not to compare both phases (Bouygues and CHEC), nor to make judgements as to which phase is "better". The East-West Highway has been operational for 15 years whilst the North-South Link is still in its infancy; and there are other key differences that make such comparisons spurious. However, we can contrast both phases, and seek to draw lessons of experience from the radically different approaches to project origination, financing and implementation.



Figure 1
Map of Highway 2000



Source: NROCC

GENESIS

2.1 An idea is born

Kingston, Jamaica, 1998: Kingsley Thomas, Managing Director of the Development Bank of Jamaica (DBJ), was nurturing an idea; an idea born of a question: If Jamaica was such a small island, why did it take so long to drive anywhere? Most of Jamaica's roads were vastly inadequate for the traffic levels being experienced daily. The result: gridlock. Traveling between the major urban centres of Jamaica was lengthy, stressful and often dangerous.

But what if Jamaica's cities and towns were connected by a network of fast, modern highways? Imagine the improvement in productivity and economic spinoffs that would result from making it quicker and cheaper to move people and goods within Jamaica? If people didn't have to spend hours every day just getting to and from work? If commercial and residential developments could be directed away from the overcrowded urban centres of Kingston, Spanish Town and Montego Bay?

DBJ commissioned a detailed study on a national highway project, looking into the technical feasibility of the proposed routes, its environmental and social challenges and economic potential. The study was positive on all fronts and concluded that with the right structure and incentives, such a project would attract interest from major toll road operators. In other words: the green light.

Highway 2000 was the centrepiece of a group of projects collectively known as the Millennium Projects; including a new population centre in mid-island, sports complex, Milk River Spa, cargo facility at Vernamfield airstrip, four industrial parks and the construction of Highway 2000. These ambitious infrastructure projects were designed to promote growth and stimulate ancillary commercial developments along the transport corridors.

The basic premise at the commencement of Highway 2000 was that from any air or sea port in Jamaica, you should be able to get to any residential zone or tourist attraction, within a maximum of one and a half hours driving, each way.

Highway 2000 was designed as one single project encompassing two interconnected, four-to six-lane tolled highways under one joint Concession:

- Route 1- Kingston to Montego Bay – following the alignment of the old railway line; and
- Route 2- Spanish Town to Ocho Rios.

The first challenge was getting people to believe. This was in the mid-1990s and Jamaica was in the throes of yet another economic recession; most people couldn't conceive of Jamaica pulling off such an ambitious project. The multilateral development banks said it wasn't possible: Jamaicans wouldn't pay tolls. It was too big, too risky. The project team even took 12 Jamaican private and public sector leaders to Malaysia, to show them what could be accomplished with leadership and vision.

*"You needed an overriding vision and belief in where you're going; leadership is more than management."*¹

¹Interview with Kingsley Thomas, former Managing Director of Development Bank of Jamaica

2.2 Leap of faith

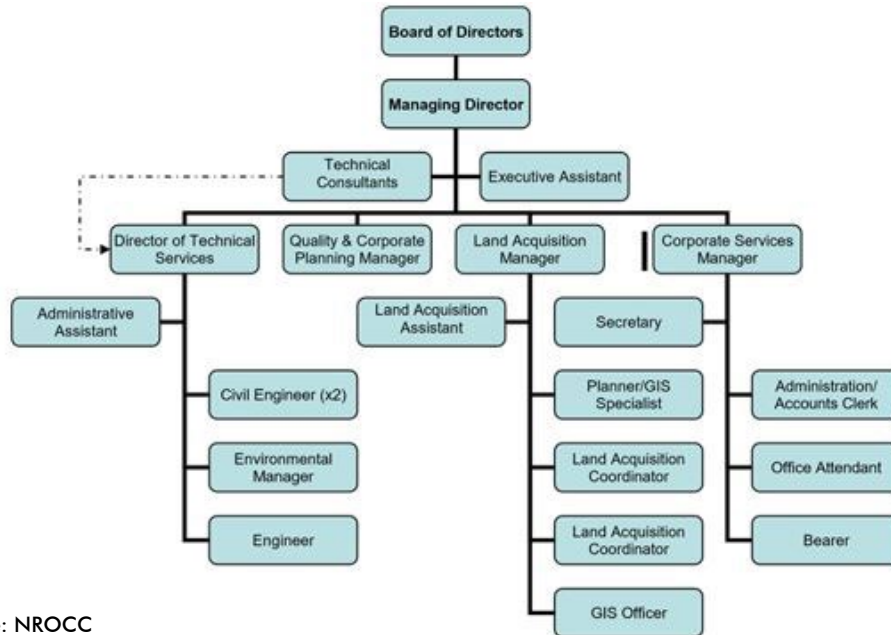
It is one thing to have vision; another to realise it. In order to attract scarce resources, a project needs its political champion; and Highway 2000 had the best. Prime Minister Percival J. (P.J) Patterson was an early and ardent believer in the project, and accorded it high priority for his administration. In September 1999 the Prime Minister formally launched Highway 2000, eliciting much media attention.

With such high-level support, DBJ allocated USD20 million to get the ball rolling. Project development is an expensive business; to attract the world's best operators, you must hire the best consultants. Without this financial backing the project would have been impossible. DBJ spent heavily on technical studies: geotechnical analysis, soil testing, drainage, route mapping, aerial surveys, traffic forecasts, legal review, feasibility studies, environmental and social impact analysis, and stakeholder consultations. This was a huge leap of faith; an expensive gamble that took Jamaica into uncharted territory. Highway 2000 was literally going where no one had gone before: who knew what lay up in those hills?

*"There was a lot at stake: if this our centrepiece project failed, it would send a devastating signal to the global marketplace – and to the country – that Jamaica was guilty of over-reaching itself. Failure was not an option."*²

Although the initial work was done by DBJ, it soon became apparent that such a major project needed its own institutional home, and the National Roads Operating and Construction Company Limited (NROCC), was established with a staff of 15 technical and administrative employees, and commenced operations in February 2002. NROCC's mission statement is: *"To oversee the financing, planning, building and maintenance of a safe and efficient network of toll highways and support roads of the highest quality, to serve Jamaica."*

Figure 2
NROCC Organisation Chart



Source: NROCC

²Interview with Wayne Reid, former Chairman of Development Bank of Jamaica

EAST-WEST HIGHWAY

3.1 Project team and institutional structure

With financial backing from DBJ, an impressive advisory team was assembled; ultimately consisting of many internationally recognised consultants, who worked on various phases of the project:

1.	UBS Warburg	Financial
2.	CFAS Ltd	Financial
3.	PriceWaterhouseCoopers	Financial
4.	Dehring, Bunting & Golding	Financial
5.	Allan & Overy UK	Legal
6.	Vaccianna & Whittingham	Legal
7.	Steer Davis Gleave	Traffic
8.	Johnson Survey Research Inc.	Traffic
9.	Jentech Consultants Ltd	Engineering
10.	Dessau Soprin	Engineering
11.	Halcrow UK	Engineering
12.	Hue Lyew Chin Engineering Ltd	Engineering
13.	Environmental Solutions	Environmental
14.	EnviroPlanners Limited	Environmental
15.	CL Environmental Ltd	Environmental

This investment in top-quality advice would pay dividends as the transaction evolved. After ten months of intense preparatory technical and financial investigations and analysis, the Request for Expressions of Interest (REOI) was issued by the Government of Jamaica (GOJ) in October 1999. The project consisted of:

“... a modern multi-lane tolled highway of approximately 230 km. that will connect the capital Kingston in the south east with the city of Montego Bay in the north west and Ocho Rios on the north central coast. Highway 2000 is a “green-field” project, which will connect the main urban/industrial/commercial centres of Kingston, Spanish Town, Old Harbour, Mandeville, Montego Bay and Ocho Rios reducing transit times between these urban areas by half.”³

In other words, one single investor was being sought to implement the entire project. The overall cost was initially estimated at USD850 million. As noted by The Rt. Hon. Prime Minister P.J. Patterson:

“Highway 2000 will address the country’s rapidly growing transportation needs, create employment, open new areas for investment activities and facilitate the expeditious movement of goods between Kingston and the country’s main population centres and major tourist resorts.”

³Invitation to express interest to prequalify for the development, construction, operation and maintenance of Highway 2000 project in Jamaica, October 1999

3.2 Prequalification

In response to the REOI, GOJ received 67 submissions from interested parties. After evaluating these submissions, the government issued the Request for Qualification (RFQ), from which 17 submissions were received. Out of these 17 firms, seven were invited to attend a pre-bid conference in Kingston in March 2000. Despite concerns expressed about specific parts of the project, the overall feedback from bidders was generally positive. The evaluation of the submissions was done in accordance with a pre-determined set of criteria, including:

- i. Financial size and capacity of the bidder to undertake a project of this size and complexity;
- ii. History of suitable construction experience; and
- iii. Satisfactory audit of profitability.

From this field of seven pre-qualified bidders, four were subsequently invited to submit bids for the construction of the first phase of Highway 2000:

- i. **Bouygues Travaux Publics – France:** One of France’s largest construction companies with extensive experience as an investor in Build-Own-Operate-Transfer (BOOT) highway projects, especially in Central Europe. Bouygues is present in about eighty countries, and has a total workforce of over 100,000 persons.
- ii. **CINTRA, S.A. – Spain:** Concesiones de Infraestructuras de Transporte (CINTRA) is a large private developer of transport infrastructure, with EUR16 billion of assets in toll roads and car parks. Cintra derives around 70% of its revenues from its business activities outside of Spain.
- iii. **Dragados Group – Spain:** Dragados specialises in transport infrastructure Concessions and has constructed more than 2,500 km of roads, 4000km of highways, 2,500 bridges and 200km of tunnels.
- iv. **LTA Construction Limited – South Africa:** LTA Construction Limited has worked extensively in Africa and the Far East. Major contracts for LTA include the Warmbaths – Petersburg Toll Road valued at over USD159M and the Highway N17 in South Africa.

By any measure this was an impressive list of bidders, and spoke volumes about the confidence the global investor community placed in Jamaica. For its own reasons, CINTRA opted not to bid; and LTA formed a bidding consortium with Dragados; which left just two bidders:

- i. Bouygues Travaux Publics, and
- ii. Dragados Group / LTA Construction Limited.

3.3 Toll Road Act 2002

The Toll Road Act, passed in February 2002, established the legal framework for the development, financing, construction, operation and maintenance of the toll roads in Jamaica by the private sector. Under the Act, the Toll Authority was established; the major

functions of which are to:

- i. Regulate the operation and maintenance of toll roads, and such other facilities as may be deemed necessary, on or adjacent to toll roads;
- ii. Monitor compliance of Concessionaires with the terms and conditions of Concession Agreements; and
- iii. Advise the Minister on matters of general policy relating to the design, construction, safety, regulation, operation and maintenance of the toll roads in Jamaica;

Concessionaires must apply to the Toll Authority for tariff increases, based on movements in the US Consumer Price Index (CPI), and the Jamaica/United States dollar exchange rate, as specified in the Concession Agreements.

3.4 The first bid

Different bidders had different priorities; at times it seemed impossible to chart a common course. Key issues included:

- i. *Traffic guarantees*: This was an issue raised early on by all bidders; that GOJ should guarantee some minimum levels of traffic and/or revenue. The Government held firm: there would be no traffic guarantees; the Concessionaire would bear the full demand risk.
- ii. *Revenue shortfalls*: Eventually it was agreed that both parties to the Concession Agreement would jointly post a letter of credit: Concessionaire USD15 million and NROCC US\$10 million; designed to cover revenue shortfalls and/or cost overruns during construction. These letters of credit still remain in place, although reduced to US\$6.75 million from Bouygues and USD4.5 million from NROCC.
- iii. *Grantor requested changes*: NROCC ultimately paid USD40.5 million for additional feeder and take-off roads, realignment of the Portmore Causeway, pedestrian bridges, and relocation of the Spanish Town Toll Plaza.
- iv. *Competing roads*: There must be an alternate free road. If improvements are made to competing roads which negatively impacts the Highway's traffic, Operator may seek compensation.
- v. *Profit-sharing*: If the Concessionaire's rate of return exceeded 16%, then NROCC would participate in a share of the profits.
- vi. *Toll Road Act*: Legislation wasn't passed until 2002, after the bids had been received and before financial close.

In June 2000, GOJ issued the bid package to the two remaining bidders, consisting of:

- Request for Proposals
- Route Alignment
- Concession Agreement
- Information Memorandum

The bid date was initially set for December 15, 2000, but was extended to February 15, 2001 at the request of bidders. Bids were opened in the presence of bidders and were studied over a two-week period. During this evaluation it was apparent that both bidders were experiencing challenges in securing financing at advantageous terms for the project.

This led one of the bidders to propose an alternative project structure, which would see it implemented in two phases instead of one. The Inter-American Development Bank (IDB) also held this view – see Section 3.11.

Both bidders were invited to post-bid clarification meetings held in the London offices of UBS Warburg over March 6 to 9, 2001. The GOJ's Advisory Team accepted that the project as then structured was too large for the market to digest in one go, and decided to break it up into phases.

3.5 Restructuring the project

The Government listened to the market and decided to split the project into the following phases:

- Phase 1A – Kingston to Sandy Bay including the Portmore Causeway and the Dyke Road;
- Phase 1B – Sandy Bay to Williamsfield (Mandeville);
- Phase 2A – Bushy Park to Ocho Rios; and
- Phase 2B – Williamsfield (Mandeville) to Montego Bay.

Although the project would now be implemented in two phases, the winner of phase one would be given a Right of First Refusal over phase two (Clause 6 of the Concession Agreement). Subsequently, there were variations in this phasing (see Section 4).

3.6 Best and final offer

In order to preserve transparency and competition, GOJ decided to reopen the bidding to both bidders, and called for submissions of Best and Final Offers (BAFO) on May 3, 2001. The project evaluation team comprised:

- | | | |
|-----------------------|---|-----------|
| • UBS Warburg | - | Financial |
| • CFAS | - | Financial |
| • Halcrow | - | Technical |
| • Steer Davies Gleave | - | Traffic |
| • Allan & Overy | - | Legal |

As outlined in the BAFO Request, bids would be evaluated against specified criteria, including:

- i. Optimum design, construction and operation and maintenance costs (lowest Net Present Value of the sum of construction costs and operation and maintenance expenditures over term of Concession Agreement).
- ii. Optimal risk profile between the Grantor and the Concessionaire.
- iii. Maximisation of Grantor's share of net cash flows after operation and maintenance expenses and debt service have been deducted from project revenues.
- iv. Ability to complete the project successfully within budget and timetable and capability of developing and managing a successful highway business.
- v. Minimisation of the Grantor's financial contribution to the project.
- vi. Achieve financial close in shortest possible time and in any event before the end of 2001.

3.7 Bid award

After a detailed analysis of both bid packages, the project evaluation team concluded that Bouygues had submitted the most economically advantageous offer. DBJ accepted the team's recommendation, and so did the National Contracts Commission (NCC); and on

June 18, 2001, the Cabinet ratified the decision to appoint Bouygues Travaux Publics as the preferred bidder.

Bouygues incorporated a local company, Trans-Jamaican Highways Limited, and was invited to hold detailed negotiations with the Government to finalise the details of the 35-year Concession Agreement and other project documents. On November 21, 2001, the signing ceremony took place in Kingston, where the following agreements were executed:

- i. Concession Agreement;
- ii. Implementation Agreement;
- iii. Shareholders' Agreement;
- iv. Procured Debt Instrument; and
- v. Guarantee Agreement.

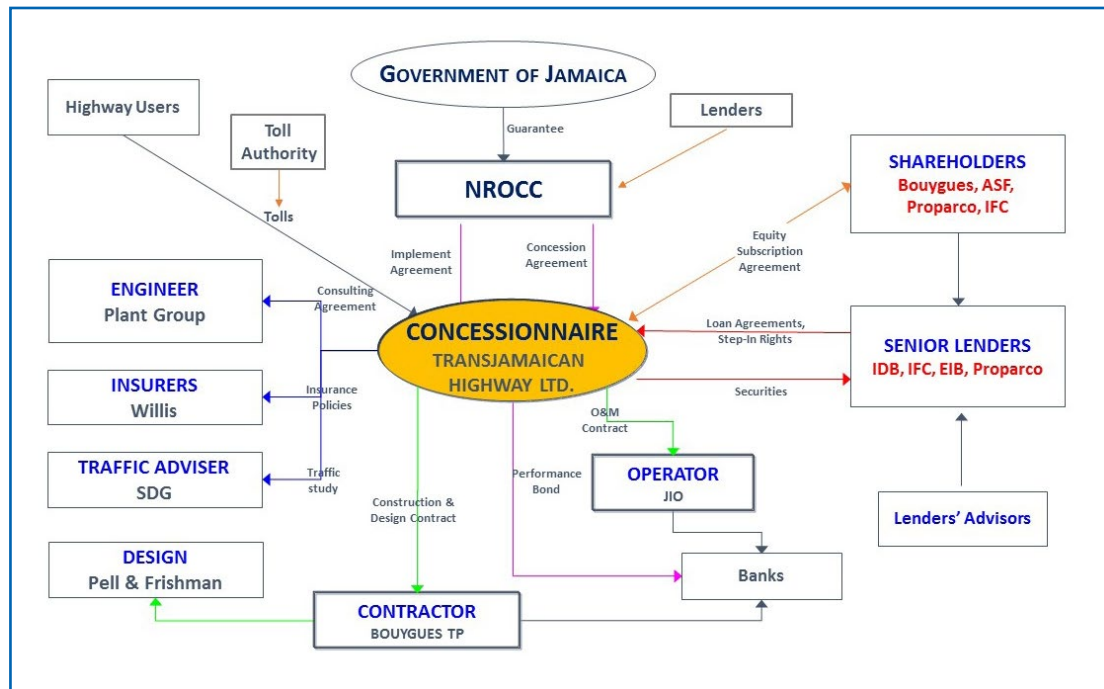
A five-month period between Bid Award and Commercial Close on such a large and complex project is commendable.

3.8 Project structure and risk allocation

Trans-Jamaican Highway Ltd. (TJH), was initially formed by Bouygues Travaux Publics, then later joined by Autoroutes du Sud de la France SA (ASF), a subsidiary of Vinci. Subsequently there were equity subscriptions from International Finance Corporation (IFC) and Société de Promotion et de Participation pour la Coopération Economique (Proparco).

Trans-Jamaican Highway signed the Concession Agreement with NROCC; and entered into sub-contracts with Bouygues for construction of the Highway, and Jamaican Infrastructure Operator (JIO) for operations. Routine maintenance is handled by JIO, long-term by TJH.

Figure 3
Project Structure on East-West Highway



Source: NROCC



Lenders have direct agreements with the project development company TJH (including step-in rights), without recourse to the Government. The Grantor NROCC is financed by equity subscriptions from the Government of Jamaica, and loans from bond holders and commercial banks.

Figure 4
Risk Allocation on the East-West Highway

	NROCC	BOUYGUES
Traffic		✓
Revenue		✓
Design & Construction		Foreseeable
Access to lands	✓	
Utility Relocation	✓	
Political Risk	✓	
Change in Law	✓	
Subordinated Capital	✓	
Standby Equity	✓	
Termination Risks - Grantor	✓	
Termination Risks - Developer	✓	
Termination Risks - No Fault	✓	
Outline Design Risks	✓	

Source: NROCC

This project structure for the East-West Highway is shown in Figure 3 (consultants relate to the initial commercial financing only, not the 2011 refinancing).

The heart of any PPP is the risk allocation: the sharing of risks between the private operator and the Government. This is shown in Figure 4.

Most of the project risks remain with the Government; apart from the key risks of traffic/revenue and design/construction.

3.9 Project financing on the East-West Highway

Bouygues had won the bid; now came the hard part: finding finance. For such a large, ambitious project this would pose unique challenges; primarily the reliability of the revenue projections: would Jamaican motorists be willing to pay tolls? In addition, there were major social and environmental issues to be investigated and ameliorated, which would take time.

However, the Concession Agreement called for financial close within twelve months of commercial close, and the Multilateral Development Banks (MDBs) needed time to complete their due diligence – see Section 3.11. Bridging loans were utilised to start the project. Subsequently Bouygues and NROCC both approached the Royal Bank of Trinidad and Tobago (RBTT), who agreed to fund the project in two bonds totalling USD130 million, issued in 2004.



New Portmore Causeway

The RBTT loans had tenors of between 7-10 years and interest rates of between 10.85% and 11.5%. This would increase the financing costs of the project, and delay the receipt by NROCC of net cash returns.

Financial closing took place in October 2002, eleven months after commercial close. Construction commenced immediately thereafter and on Monday, September 22, 2003, the first leg of Highway 2000 was opened: a 13 kilometre stretch of road between Bushy Park in St Catherine and Sandy Bay in Clarendon. Subsequently Kingston to Bushy Park (21 km) was completed in December 2004, and the new Portmore-Kingston Causeway (5 km) in July 2006.

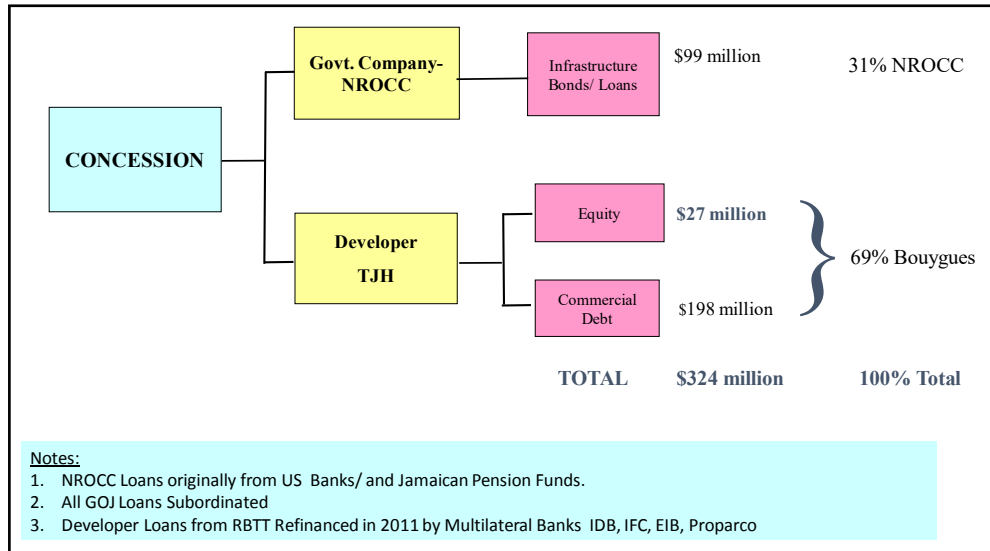
The Government's cash contribution to the project, subordinated debt of USD99 million, was raised in large part by the issuance by NROCC of 30-year inflation-linked infrastructure bonds locally and internationally; a first for Jamaica. This bond carried a coupon of 4.5%, plus compensation for annual inflation based on movements in the Jamaican Consumer Price Increase (CPI). This bond was to be repaid from free cash flows from the project, following repayment of senior commercial lenders.

The financing structure for phase one is shown in Figure 5.

3.10 Traffic levels on the East-West Highway

The Highway immediately answered the question: will Jamaican drivers pay tolls? Traffic levels on the toll road commenced at about 10,000 vehicles per day, jumping to about 50-60,000 with the opening of the Portmore Causeway in 2006, as shown in Figure 6 below. However there was one group of users that was clearly unhappy with the toll regime: residents of Portmore. On January 29, 2005, Portmore residents staged a horn-honking protest at plans for the toll road, followed by a louder one the following week. The residents

Figure 5
Financing Structure of the East-West Highway



Source: NROCC/CDB

contended that the non-tolled alternative, Mandela Highway, took a lot longer than the toll road, and therefore was not an “equivalent free route” as mandated in the Concession Agreement.

The Portmore Citizens Advisory Committee (PCAC) brought a legal action against GOJ, which was heard in the Supreme Court of Jamaica in July 2005⁴. The Court ruled in favour of the Government: that Mandela Highway was indeed a free alternate route to the tolled Highway. Undeterred, the PCAC took the case to the Court of Appeal and ultimately to the United Kingdom Privy Council, which delivered its ruling on 3rd December 2007: again in favour of the Government.⁵

The Government had presented a compelling case; proving with timed GPS readings that not only had travel times on the toll road been lowered dramatically since its opening the previous year, but that average travel times on the non-tolled alternate routes had also reduced substantially.

However, it wasn’t all smooth sailing; in 2008 Jamaica was hit by the global recession, and traffic on the Highway declined significantly. This decline was also due to the removal of a subsidy which the Government had provided to the users from Portmore since 2006. It was notable that toll road usage was higher in the mornings, but that many drivers chose to return home in the evening by the longer free route.

“The asset we are creating actually changes the face of Jamaica, and develops new traffic patterns just by being there.”⁶

⁴“Privy Council to hear Portmore toll case October,” Jamaica Observer, April 21, 2007, http://www.geocities.ws/portmore_tollinfo/events.htm.

⁵ Robert Pickersgill, “Remember, I told you,” Jamaica Gleaner, December 8, 2007, <http://old.jamaica-gleaner.com/gleaner/20071208/letters/letters2.html>.

⁶ Interview with Guillaume Allain, Trans-Jamaican Highway

Figure 6
Monthly Traffic on East-West Highway 2003 – 2017



Source: NROCC

3.11 Refinancing from Multilateral Development Banks (MDBs)

Five years into the 35-year Concession, high financing costs coupled with lower than forecast traffic levels were putting pressure on the Concessionaire. It was also putting pressure on NROCC, which in 2004 had to borrow an additional USD75 million from Wachovia Bank (guaranteed by GOJ) to meet interest payments to its inflation-linked bondholders and write down earlier debt.⁷

After completion of the Portmore Causeway, NROCC, TJH and GOJ made a joint approach to IDB and other MDBs for re-financing of the commercial debt, as well as new financing for completion of phase one. By this time the project had an established track record, and many of the project risks had diminished. This time the project got an altogether more positive hearing and, led by IDB, the application reached a successful close in February 2011.

This financing package took the form of an 18-year limited recourse loan to TJH from a syndicate of multilateral agencies, led by the IDB and including the European Investment Bank (EIB), International Finance Corporation (IFC), and Proparco (AFD).⁸

Participations of debt and equity are shown in Table 1.

⁷ "Chavez considers US200M Highway Loan," http://www.jamaicaobserver.com/news/87117_Chavez-considers-US-200m-highway-loan

⁸ European Investment Bank, "International financial institutions give green light to extend Jamaica's only toll road," news release, April 7, 2011, http://europa.eu/rapid/press-release_BEI-11-50_en.htm.

⁹ Astris Finance, "Astris Closed a USD 285m Financing Package for Highway 2000 in Jamaica," news release, February 2011, <https://www.astrisfinance.com/news//february-2011-astris-closed-a-usd-285m-financing-package-for-highway-2000-in-jamaica>.

Table 1
Financing package from Multilateral Development Banks (USD)

	Debt	Equity	TOTAL	%
International Finance Corporation (IFC)	53,600,000	4,600,000	58,200,000	28.3%
European Investment Bank (EIB)	53,600,000	-	53,600,000	26.1%
Inter-American Development Bank (IDB)	53,600,000	-	53,600,000	26.1%
Proparco (AFD)	37,700,000	2,400,000	40,100,000	19.5%
TOTAL FINANCING PACKAGE	198,500,000	7,000,000	205,500,000	100.0%

Source: NROCC

Proceeds of the financing was to be used to refinance the RBTT bond issued in 2001, as well as to finance the expansion of the project towards May Pen, with the construction of an additional 10km four-lane segment.⁹ As we shall see in Section 4, the phasing of subsequent road developments was altered.

*"The MDBs went to the limit of their mandate to accommodate this project; they have been very flexible and did their best to help us."*¹⁰

3.12 Social and environmental issues

Assessing and minimising social and environmental impacts is essential in any major infrastructure project; especially one of this magnitude. Dessau Soprin assessed six different routes and selected an alignment which offered the least negative impacts; and minimised the need to relocate. Various factors were considered including population centres, sensitive and protected areas, terrain, land ownership and soil conditions. Social and environmental impact assessments were conducted (including archaeological assessments), followed by public consultations with communities adjacent to the selected Highway route.

The East-West Highway involved construction of 56.5 km of four- to six-lane tolled highways; the alignment planned to minimise transit through built-up areas. Consequently most of the Highway was built on unoccupied lands. In phase 1A, a total of 117 parcels of land

Table 2
Summary of land acquisition on phase 1A

Impacted Parcels	Numbers Affected
Small Farmers	12
Squatters Resettled	23
Tenants	6
Total Persons Resettled	41
Government Lands	104
Private Lands	13
Total Parcels of Land Acquired	117

Source: NROCC

¹⁰Interview with Guillaume Allain, Managing Director, Trans-Jamaican Highways

were acquired, 90% of which were already owned by the Government; as shown in Table 2 below.¹¹

NROCC held consultations with persons and owners of businesses who would be affected by the Highway, and resettlement alternatives were offered at full replacement costs for losses including lands, buildings, other structures, crops, trees, businesses and incomes lost, all at prevailing market values.

In addition to relocation, there were other challenges to overcome:



Portmore Causeway, showing replanted mangroves

- **Flood mitigation:** The East-West Highway is largely constructed on flat, flood-prone lands. Catchment studies and Intensity-Duration-Frequency (IDF) curves were developed, which greatly influenced the final route alignment. In October 2004 Hurricane Ivan hit Jamaica causing extensive flooding, and this practical experience resulted in further modifications to the alignment.
- **Mangroves:** Construction of the Portmore Causeway necessitated the destruction of several hundred metres of mature mangroves. After consultations with the National Environment and Planning Agency (NEPA), Bouygues started a mangrove farm in the vicinity of the Causeway Bridge. These new mangroves replaced those lost in the construction of the Highway. One of the conditions of NEPA's environmental permit stipulated that the contractors must replant an equivalent area of mangroves. Highway 2000 replanted four kilometres of new mangroves; completed in 2008.¹² Trans Jamaican Highways Limited is monitoring the regrowth of the mangroves and

¹¹ Highway 2000 Resettlement Action Plan phase - 1b-1: Sandy Bay to Four Paths; NROCC Land Acquisition Unit May 4, 2009

¹² NROCC Annual Report, 2007-2008

¹³ <http://h2kjamaica.com.jm/web/documents-reports/fishing-complex/>

¹⁴ "Portmore Fishing Village Opens," Jamaica Information Service, October 31, 2009, <http://jis.gov.jm/portmore-fishing-village-opens/>.

provides detailed annual reports to their multilateral lenders.

- Noise: One of the unique features of the Highway is the requirement to build noise abating walls to prevent nuisance to nearby communities; a first in Jamaica.

MDBs have higher social and environmental safeguards than their commercial counterparts. Nowhere was this more evident than in the Portmore fisher folk community¹³. This community of informal small boat operators and fish sellers had been squatting on lands adjacent to the old Portmore Causeway; but now had to be relocated to somewhere more suitable.

During construction of the Causeway the fisher folk were relocated to the mainland of Kingston in 2004, as a temporary measure until NROCC could construct a purpose-built facility on the nearby Dyke Road. In discussions with the community it was agreed that 81 fishers and 23 vendors would be relocated and provided with boating, storage, vending and other facilities at the permanent fishing complex, completed in October 2009¹⁴. Finally, NROCC constructed domestic housing for 16 vulnerable households that had been living on the Causeway beach; these new housing units were handed over in 2011.

There are still challenges at the fishing complex. Collecting the monthly payments from fisher folk to cover the costs of maintenance continues to be difficult, resulting in a lack of proper maintenance of the facilities. The beach from which fishing boats are launched has become silted and is in need of cleaning and dredging. The location of the Fishing Complex on the Dyke Road has caused reductions in fish sales, due to less convenient access by customers. Marketing of the new location was carried out by NROCC, combined with training of the fisher folk in the handling of foods and safety.

In addition to NROCC, the concessionaire TJH also is pursuing its own sustainability agenda:

"We are promoting sustainable development through initiatives such as our water harvesting tanks at all toll plazas and our efforts to reduce electricity use by 50 per cent so far. Other



¹⁵ Interview with Nicole Kuster, administrative and communication chief officer for JIO

¹⁶ Interview with Guillaume Allain, Managing Director, Trans-Jamaican Highways



Fishing beach before and after rehabilitation by NROCC



New housing units handed over to families (before and after)

initiatives include a biodiversity awareness programme with the Institute of Jamaica; a partnership with the Mustard Seed Communities for roof repairs at their Jerusalem property.”¹⁵

TJH promotes full gender equity and equality; as well as inclusiveness at the community level. Men and women work and are compensated equally at all levels within the company’s organisational structure. Through training TJH is seeking to break down the stereotypes of assigning technical jobs to men and commercial one to women; although this takes time. There are jobs that could be mechanised, grass cutting etc., but as is common in Jamaica these jobs are performed manually, often by women. In the early days there were problems with children stoning cars from the overpasses, but after outreach programmes in schools these incidences were reduced.

**Figure 7
East-West Highway Project Timetable**

	1999	2000	2001	2002	2003	2004	2005	2006
Project launch	★							
Development work								
Bouygues Concession signed			★					
Financial close Phase 1				★				
Construction Phase 1								
Opening first leg					★			
Opening Portmore Causeway								★

★ Milestones ■ Construction period

¹⁷ Racquel Porter, “Section of Highway 2000 named after PJ Patterson,” Jamaica Gleaner, April 17, 2015, <http://www.jamaicaobserver.com/news/Section-of-Highway-2000-named-after-PJ-Patterson>.

*"We don't want to be a 'foreign asset' with no connection to the communities we pass through; we are integrally linked and we need to devise sustainable, win-win solutions."*¹⁶

3.13 Lessons learned on the East-West Highway

The East-West Highway was launched in 1999 and completed in 2006. The East-West Highway has been operational for 13 years; in hindsight the following conclusions and lessons of experience can be drawn:

1. **It starts with leadership:** Highway 2000 would not have been possible without the inspiration, belief and drive of key personalities within the Government: Kingsley Thomas and Wayne Reid in the early years, followed by Ivan Anderson. With strong support from then Prime Minister Percival J. Patterson (after whom a section of the Highway was recently named¹⁷) the necessary resources were made available to commence project preparation.
2. **Prepare, prepare, prepare:** When asked why they decided to invest in Jamaica, a country with no experience of toll roads and which was unknown to Bouygues, their representative responded: *"It was clear from the quality of the advisors that the Government was serious about the project; there was a well-organised bid with clear and transparent evaluation criteria. Finally we noted that other major firms were interested in the opportunity, so we knew this was a serious project."*¹⁸ Not only did the Government's solid project preparation result in a credible pool of bidders, it facilitated a smooth and transparent transaction, providing all bidders with identical information packages and cost estimates.
3. **The concept is proven:** In the early days one of the major risks was: would Jamaicans pay tolls? Lenders had grave doubts. Actual experience has shown that although traffic levels have fluctuated with economic conditions, Jamaicans have learned to appreciate the time value of tolls.
4. **Sustainability and inclusiveness pay:** Construction of the East-West Highway was not without major social and environmental challenges; however with strong support from the sponsors, Government and MDBs, most of these have been satisfactorily resolved. Through its several sustainability initiatives, the Highway has become an integral part of the communities in which it is located, with tangible rewards for all concerned.
5. **Listen to the market:** The project was initially offered as one single nationwide concession: 230 km of four- to six-lane highways. But bidders – and their financiers – felt that for Jamaica this was a step too far. Jamaica's first toll road was deemed too big; too complex; too risky. The Government listened to the market and split the project into phases. The rest is history.
6. **Capacity is key:** Capacity has many dimensions: competence of the government team, availability of local consultants and engineers, legal, administrative and regulatory systems, port facilities, roads, sub-contractors, heavy equipment – the list goes on. Highway 2000 benefitted from Jamaica's capacity in these areas; and also contributed

¹⁸ Interview with Guillaume Allain, Managing Director, Trans-Jamaican Highways

¹⁹ Ibid

to growing it; many young Jamaican engineers who honed their skills on the Highway have moved on to senior positions, at home and abroad.

7. **Forecasting is imprecise:** Traffic levels on the East-West Highway never reached their forecast levels; but few people could have predicted the recession of 2008. Statistical and econometric techniques provide likely ranges of demand, but the prudent developer would do well to concentrate on the lower end of the spectrum.
8. **The future is bright:** Bouygues Publics Travaux is happy with their investment and is seeking new opportunities in Jamaica, including extension of the East-West Highway to Williamsfield (Mandeville):

*"We are very proud of what has been achieved over the last 15 years. We have a good a partnership with the Government, and very good local staff – the first three people we hired are still with us! This is the first large-scale project of its kind in Jamaica; we have had changes in governments, but this has never impacted the project; people respect the sanctity of contracts. This long-term view gives comfort to investors. People on the Jamaican side have good knowledge of the project; they know how to monitor the Contract; but not to over-monitor. Politics does not interfere with the project; this continuity is critical."*¹⁹

NORTH-SOUTH LINK

4.1 Challenges of the North-South Link

With phase one effectively completed, the Government set about planning subsequent phases of Highway 2000: in particular the North-South Link. It was as far back as 1966 that the idea of a highway across Jamaica's mountainous interior was first mooted. Since then it had been the dream of successive administrations to build a fast, safe highway between Jamaica's north and south coasts. The old narrow road was heavily congested with three natural choke points: at Fern Gully, Mount Rosser and the Bog Walk Gorge. On a good day it could take two hours to drive from Kingston to Ocho Rios; on bad days it was not unusual to take twice as long. Since 1966 four major studies had been conducted, looking at various alignments to achieve this dream.

In March 2006 the Cabinet authorised NROCC to commence preparations for the Mount Rosser leg of the Highway, with a view to bringing forward construction from Spanish Town to Ocho Rios.²⁰ The phase one concessionaire, TJH (Bouygues), held a Right of First Refusal (Clause 6 of the Concession Agreement) on the North-South Link. However, studies showed that traffic between Kingston and Ocho Rios was less than 10,000 per day, compared to over 50,000 on the East-West Highway. Perhaps not surprisingly, TJH was less sanguine about this phase of the project.

4.2 Mount Rosser Bypass

In 2007 Bouygues entered into discussions with NROCC for the Mount Rosser leg of the North-South Link. But whereas Bouygues had been enthusiastic about the East-West Highway, their response to this new opportunity for which they held a Right of First Refusal was muted. Due to low traffic and high geotechnical risk, Bouygues was not interested in a conventional concession contract; instead offering to build the Bypass under a traditional design-build contract.

In April 2007 the NCC gave its approval for a variation to the Concession Agreement "*... in the sum of USD99.5 million, for the design and build contract for the Mount Rosser Bypass to Moneague including building, outline designs and equipment.*"²¹

Construction of the Mount Rosser Bypass commenced on 15th July, 2007. Challenges appeared early; areas of weak and unstable soil were discovered during construction, resulting in a dispute between NROCC and TJH over who was responsible for the additional costs. Construction was halted in early 2011 while a resolution to the impasse was being sought.

4.3 The Chinese make an offer

At this time, China Harbour Engineering Company (CHEC) was finishing the Palisadoes Shoreline Protection and Rehabilitation Works, and was seeking additional contracts before demobilising their heavy equipment. CHEC indicated to NROCC that they would be willing to complete the work on the Mount Rosser Bypass, accepting all remaining geotechnical

²⁰ Report on the Investigation Conducted into the Highway 2000 Concession and Administration Agreement. Office of the Contractor-General. 2007.

²¹ Ibid

risks - as well as to construct all the rest of the North-South Link. In January 2013 CHEC commenced work on completion of the Bypass, which was opened on August 5, 2014.

It was evident to NROCC that a conventional BOOT model for the North-South Link would not be commercially viable due to high capital costs and low traffic volumes. CHEC and NROCC commenced discussions on the North-South Link. For the negotiations NROCC hired:

- PricewaterhouseCoopers - Finance
- Steer Davies Gleave - Traffic
- Mott MacDonald - Geotechnical risk assessment
- Dessau Soprin International - Engineering

CHEC commissioned their own traffic forecast, which came out higher than the forecasts prepared by Steer Davies Gleave. On this matter, Ivan Anderson made the point that *"the Chinese got the numbers to work – somehow."*²² The CHEC proposal was not "normal", in that no one could see how the Chinese were going to make a profit. In a presentation to the NCC on March 13, 2012 NROCC advised that:

*"The results of the analysis using SDG revenue projections show that the project is not viable if it is to be undertaken on commercial terms at available interest rates ... Based on the foregoing the ability of the project even over 50 years to repay the loans is extremely doubtful and could not be undertaken by any other Company but a Chinese Firm given their availability of Cash ... We believe that the Proposed Agreement could not be matched by any other developer operating on a commercial basis, it is only through the support of the Government of China that this is possible."*²³

On June 21, 2012, the Government signed the Concession Agreement with CHEC to construct the 66-kilometre North-South Link over a three-year period, at a cost of USD610 million. CHEC also agreed to reimburse the Government of Jamaica, via a long-term receivable, the USD120 million for its previous expenditure on the Mount Rosser Bypass.

4.4 The CHEC land deal

In negotiations leading up to contract signing, CDB had insisted on a blanket GOJ guarantee for their long-term loan, which the Government refused. It was obvious that toll revenues on the North-South Link would not be sufficient to ensure viability, therefore CHEC suggested an incentive mechanism that was common in China: commercial development on lands adjacent to the Highway.

The development of ancillary commercial activities along the Highway was one of the economic objectives of the project, and there was concern at the slow pace of such developments along the East-West Highway.²⁴ The CHEC proposal had the advantage of incentivising the

²² Interview with Ivan Anderson, Managing Director NROCC

²³ Open Statement by the OCG Regarding the Proposed Highway 2000 North South Link and the Container Transshipment Hub Projects, May 1, 2012

²⁴ Interview with Kingsley Thomas, ex-Managing Director of Development Bank of Jamaica

concessionaire to ensure that such ancillary developments were programmed and not left to chance. However, given that most of the Highway would be fenced off, there were not many opportunities for commercial activities, except at interchanges and on-off ramps.

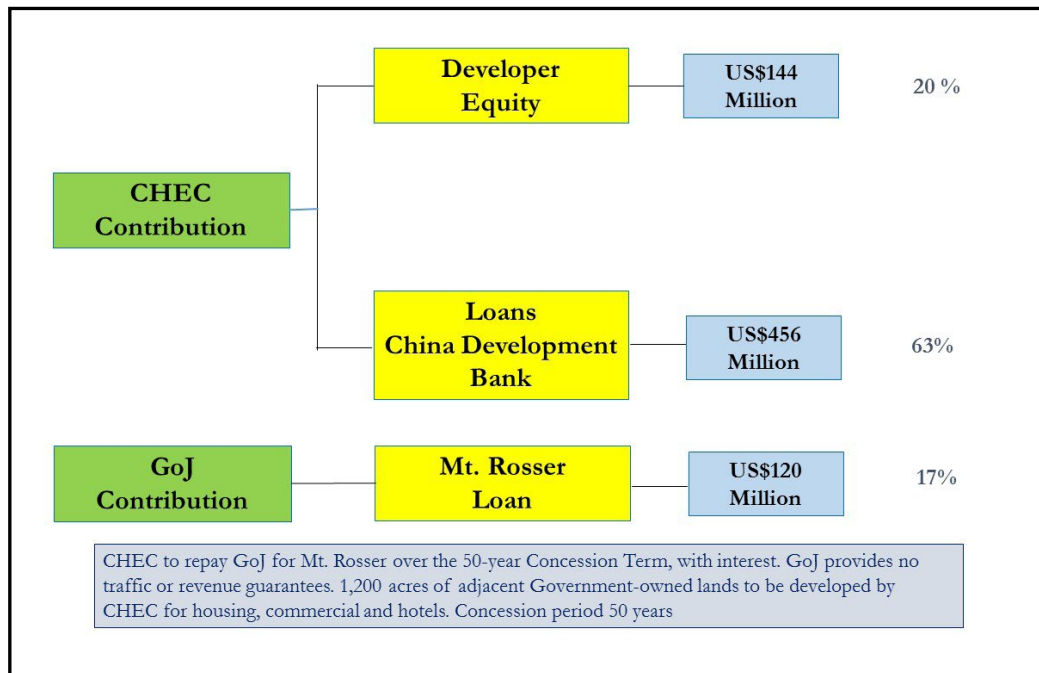
The deal that was ultimately struck gives CHEC access to 1,200 acres of Government-owned lands along the Highway, on the following conditions:

- CHEC must make applications to NROCC for access to lands on a project by project basis; submitting full development plans.
- If NROCC approves the project, the lands would be transferred to CHEC with timeframes for commencement and completion of the developments.
- Should the developments not be carried out in keeping with the timeframes agreed then the lands would revert to the GOJ.

Land development is seen by CHEC as a profit-making opportunity, as well as a means to drive traffic: *"This is where we see the long-term potential – in the ancillary developments."*²⁵ CHEC is currently seeking to develop 2,400 new hotel and residential rooms in St. Ann.²⁶

4.5 Project financing on the North-South Link

Figure 8
Financing Structure of North-South Link



Source: NROCC/CDB

²⁵ Interview with Lu Qin, Jamaica North-South Highway

²⁶ Karena Bennett, "CHEC adds 1,400 more rooms to planned North South Highway hotels," JamaicaObserver, May 9, 2015, http://www.jamaicaobserver.com/business/CHEC-adds-1-400-more-rooms-to-planned-North-South-Highway-hotels_18885353.

NROCC did not play an active role in CHEC's financing discussions with CDB, and the process of obtaining financing commitment appeared to be reasonably quick. The financing structure of the North-South Link is shown in Figure 8.

4.6 The Contractor-General gets involved

On May 1, 2012, the Office of the Contractor-General (OCG) issued an "Open Statement by the OCG Regarding the Proposed Highway 2000 North South Link and the Container Transshipment Hub Projects".²⁷ In it, the OCG expressed concerns regarding, among other things, the sole-source procurement of CHEC to construct the North-South Link; and referred to unsolicited proposals as "a corruption-enabling device". The OCG's specific concerns were:

- i. The CHEC proposal was not financially viable;
- ii. The unsolicited proposal was contrary to Jamaica's PPP policy; and
- iii. There were allegations of corruption against CHEC's parent company on projects elsewhere in the world, principally in Bangladesh.²⁸

The OCG met with NROCC, NCC, National Works Agency and other Government agencies and fully discussed all aspects of the project, including steps taken to ensure that it represented value for money for Jamaica. Although the North-South Link resulted from an unsolicited proposal from CHEC, this was submitted only after Bouygues, the holder of the Right of First Refusal, had passed on the opportunity. NROCC therefore had reason to believe that a second tender for the North-South Link on the same basis would not yield commercial success. In that case, NROCC felt it was appropriate for them to entertain CHEC's proposal.

The discussions with the OCG resulted in a six-month delay in the project, and provided input into the drafting of Jamaica's PPP Policy, particularly on the treatment of unsolicited proposals.²⁹

4.7 Social and environmental issues

The Concession Agreement established environmental obligations to the Grantor and by extension the developers of the Highway. Grantor responsibility included conducting the environmental impact assessments (EIAs), obtaining and providing all other environmental documentation to the developer, and bear all the costs, fees and expenses involved. The Developers then take all necessary steps to obtain all environmental permits required from NEPA and other relevant governmental or regulatory agencies.

One challenge was that the level of detail provided by the developer (CHEC) resulted in longer than expected delays in the environmental review process. The environmental

²⁷ Office of the Contractor General, "Open Statement by the OCG Regarding the Proposed Highway 2000 North South Link and the Container Transshipment Hub Projects," news release, May 1, 2012, <http://www.ocg.gov.jm/ocg/releases/open-statement-ocg-regarding-proposed-highway-2000-north-south-link-and-container>.

²⁸ Associated Press, "CHEC at centre of Bangladesh bribery scandal," Jamaica Observer, July 27, 2011, <http://www.jamaicaobserver.com/news/CHEC-at-centre-of-Bangladesh-bribery-scandal>.

²⁹ Interview with Ivan Anderson, Managing Director NROCC

monitoring plan did not anticipate the issuance of 75 permits and licences. As such, sufficient attention was not given to some permits that would require greater attention. The Highway is Jamaica's largest construction project to date:

*"It involved moving in excess of 15 million cubic metres of material, or as much as 1.5 million truckloads. We also had to deal with some challenges in a small area of the roadway where eighty 40-foot piles had to be constructed to retain the slope on Mount Rosser and stabilise the area where geotechnical issues were being experienced. Netting and mesh have been used to prevent rubble and stones from falling off the hillside and onto the roadway and it is not something that has been done before in Jamaica."*³⁰

The North-South Link, 66 km of four-lane highway across Jamaica's mountainous interior, presented major engineering, construction, environmental and social challenges. A total of 450 persons were relocated from 150 structures. NROCC handled all land purchases and compensated all occupiers at market prices and full replacement cost of all structures, even in cases where there was no land title. Construction met with a number of social and environmental challenges:

Runoff and siltation:



Siltation at Mammee Bay

On December 16, 2015, NEPA issued a warning letter to the Jamaica North-South Highway Company (JNSHC), the company CHEC incorporated to oversee the construction of the highway, voicing concerns regarding runoff and drainage into the sea at Mammee Bay. More warning letters followed. In response, CHEC constructed seven check dams at strategic locations within the watershed to try and contain loose construction materials onsite or near

³⁰ "Mount Rosser bypass most significant road engineering project," Jamaica Observer, August 8, 2014, <http://www.jamaicaobserver.com/news/Mount-Rosser-bypass-most-significant-road-engineering-project>.

³¹ Vernon Davidson, "Highway blamed for environmental damage," Jamaica Observer, August 6, 2016, http://www.jamaicaobserver.com/news/Highway-blamed-for-environmental-damage_69694.

to the site. In August 2016 a group of property owners at the northern end of the Highway sought the intervention of the public defender in a dispute with CHEC over environmental damage.³¹

Employment:

The Concession Agreement specified that at no time should the number of Chinese workers exceed the number of Jamaicans. At the height of construction there were about 1,200 to 1,500 Jamaicans and 700 to 900 Chinese workers on site. While most of the Jamaicans were low-skilled: stonemasons, clearing, concrete mixing, etc., a number of Jamaican engineers were also employed. In the early days of the project there were challenges caused by



Landslide on Mount Rosser Bypass

different cultural practices and lack of language communication, but towards the end these had largely been overcome.

Landslides:

It had long been known that the North-South Link would face some major geotechnical risks along the alignment; in fact several Jamaican engineers had previously warned of the instability along the Mount Rosser Bypass.³² On May 30, 2016, a landslide occurred along a section of the Highway.³³ Works to correct the landslide were completed in February 2017.

Noise:

As part of the Environmental Permitting process residents of Caymanas Country Club Estate complained about several inconveniences caused by the Highway, including noise and dust during construction and noise and headlight glare after the Highway was opened. In response, the developer built noise walls.

4.8 Early operating results

Work on the North-South Link was commenced in 2013 and was completed in 2016.

³²"Local engineers say North-South highway landslide raises serious questions," Jamaica Gleaner, June 6, 2016, <http://jamaica-gleaner.com/article/news/20160606/local-engineers-say-north-south-highway-landslide-raises-serious-questions>.

³³ "Section of North-South Highway affected by landslide still closed," Jamaica Gleaner, June 3, 2016, <http://jamaica-gleaner.com/article/news/20160603/section-north-south-highway-affected-landslide-still-closed>.

**Figure 9
North-South Link Project Timetable**

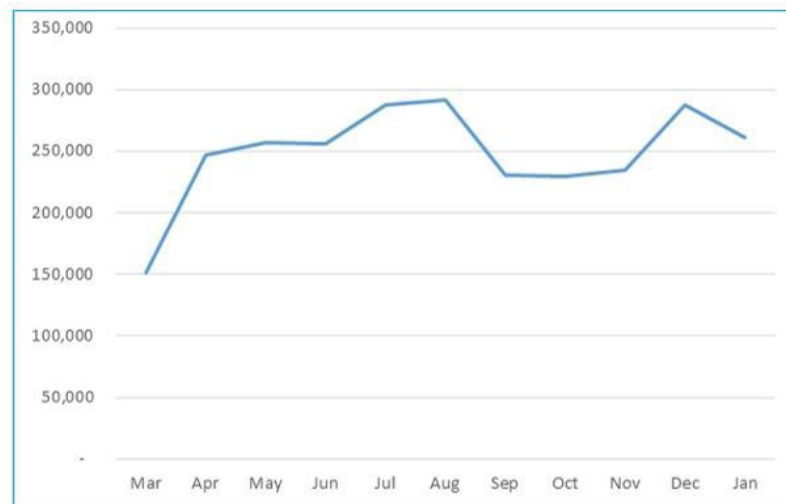
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Construction of Mt Rosser Bypass		■	■	■			■	■		
CHEC Concession signed						★				
Opening of Mt. Rosser Bypass								★		
Construction of North-South Link							■	■	■	
Opening of North-South Link										★

Key: ★ Milestones
 ■ Construction

The North-South Link was opened by Prime Minister Andrew Holness on March 23, 2016. This was CHEC’s first operating toll road outside of China, so they had to get acclimatised to operating conditions in Jamaica. JNSHC currently employs almost 200 workers, including five Chinese nationals, scheduled to be reduced to two.

In 2015 the Company sent three employees to China for technical and language training. Many ex-construction workers are currently employed as sub-contractors for bush cutting,

**Figure 10
Traffic on North-South Link 2016-2017**



Source: NROCC

³⁴ Racquel Porter, “NWA signs US\$64m deal with Chinese to widen Mandela Highway,” Jamaica Observer, July 22, 2016, <http://www.jamaicaobserver.com/news/NWA-signs-US-64m-deal-with-Chinese-to-widen-Mandela-Highway>.

³⁵ Douglas McIntosh, “Cabinet Approves Contract with CHEC for Southern Coastal Highway,” Jamaica Information Service, October 27, 2016, <http://jis.gov.jm/cabinet-approves-contract-chec-southern-coastal-highway/>.

repair of structures, inspections, cleaning, etc.

Figure 10 shows traffic levels on the North-South Link in the first ten months of operation.

CHEC has continued to expand its presence in Jamaica. In July 2016 the company signed a USD64 million contract to rehabilitate and widen the Mandela Highway³⁴; and in October 2016 the Cabinet approved a USD384 million contract for the 43km Southern Coastal Highway Improvement project³⁵--non-tolled roads both financed by China Exim Bank.

4.9 Lessons learned on the North-South Link

In hindsight, the following lessons can be drawn from the North-South Link:

1. Given that the North-South Link was included as a Right of First Refusal in the phase one tender, and the holder of that Right had passed on the opportunity; the Government felt that it was permissible to consider CHEC's unsolicited proposal.
2. The CHEC offer was not "normal"; in that it was not a commercially viable project and would not have been possible without financial support from the Chinese state.
3. The CHEC land deal is a key factor in the long-term business plan of CHEC, and the North-South Link probably could not have been done without it³⁶.
4. The management approach of CHEC was different from western contractors, and all parties needed time to adjust to the Chinese system. For example, Jamaican workers were not used to working extra hours, as the Chinese did. However the Jamaican employees rose to the occasion, and eventually matched the productivity of their Chinese counterparts.
5. CHEC should have ensured that key personnel and senior engineers with the appropriate language skills were continually in Jamaica to address comments and design issues with the Grantor, NEPA and other GOJ agencies, in a timely manner.
6. The steep eight percent gradient along sections of the Mount Rosser Bypass deters some heavy vehicles.
7. Revenues on the North-South Link currently are insufficient to cover operating and capital costs, but this was anticipated; CHEC had forecast ten years of net losses. *"This is a 50-year Concession, 10 years is only one fifth; for the remaining 80 percent we expect to make profits."*³⁷

³⁶ Alpha Saunders, "Land swap deal made highway possible — Phillips," Jamaica Observer, May 10, 2017, http://www.jamaicaobserver.com/news/land-swap-deal-made-highway-possible-8212-phillips_98374?profile=1373&template=MobileArticle.

³⁷ Interview with Lu Qin, Jamaica North South Highway Company

LESSONS FOR THE FUTURE

5.1 Motivations and priorities

Contractors are not homogeneous creatures and therefore no two contractors have the same strategies. This was particularly evident in the contrasting ways the East-West Highway (under Bouygues) and the North-South Link (CHEC) projects were executed. The East-West Highway was planned and implemented under the “classic” methodology:

- a) A commercially viable project;
- b) An open international tender;
- c) Won by a western contractor; and
- d) Financed by a mixture of commercial banks and MDBs.

By contrast, procurement of the North-South Link was not implemented along traditional lines:

- a) A “non-commercial” project that was declined by the holder of the Right of First Refusal on the grounds that it was not viable;
- b) An unsolicited proposal from a Chinese construction company; and
- c) Financed by CDB.

Bouygues’ motivation was relatively straightforward: a large construction project followed by a 35-year operating concession that promised to generate sufficient revenues to provide a decent return on investment.

CHEC’s motivations were less obvious; the traffic levels on the North-South Link were considerably less than on the East-West Highway). However CHEC clearly saw the long-term potential of growing the traffic, especially with the secondary commercial developments they had planned.

Why Jamaica? For both Bouygues and CHEC, a major financial investment in Jamaica was a departure from their normal business models--what did they see in the Highway that made it such an attractive opportunity?

Bouygues: *“Jamaica was not the most well-known country for us; but the tender had all the aspects we were used to finding: competition, preparation, pre-design work – this all gave the necessary guarantees of seriousness. The tender was a success, there were 3 or 4 bids from first-level contractors, so it shows that we were not the only ones thinking like that.”³⁸*

CHEC: *“Politically, both China and Jamaica have good relationships, there is mutual trust. The security of our investment was guaranteed, compared to some other countries. Secondly, we found out that the main industry in Jamaica is tourism, so if there’s a highway connecting the capital with the main tourism areas, it could have high potential.”³⁹*

³⁸ Interview with Guillaume Allain, Trans-Jamaican Highway

³⁹ Interview with Mr. Lu Qin, Jamaica North-South Highway Company

5.2 Social and environmental safeguards

The construction of Highway 2000 faced several major environmental and social challenges:

- i. Relocation of Portmore fisher folk;
- ii. Creation of Dyke Road Fishing Complex
- iii. Replanting of mangroves
- iv. Flood control
- v. Noise pollution
- vi. Dust and air pollution during construction
- vii. Runoff and siltation
- viii. Landslides

Whereas both phases involved challenges, the involvement of MDBs in the refinancing of the East-West Highway in 2011 contributed to differences in the way these challenges were handled. The MDBs have higher social and environmental safeguards than commercial banks or the China Development Bank; and this benefitted all phases of the project. For example, all land acquisitions on the North-South Link employed the same standards of compensation as on the East-West Highway.

As noted in Section 4.7, there were environmental challenges on the North-South Link, principally runoff and siltation at Old Fort Bay in St. Ann. In response, CHEC accepted that construction of the Highway “may have created or exacerbated, a few challenges to some residents in close proximity to the highway.”⁴⁰ Discussions are continuing between CHEC and the residents.

5.3 Financing challenges

The East-West Highway was the first toll road in Jamaica; and the list of project risks was daunting:

- *Demand risk:* This was Jamaica’s first toll road so there was no precedent. Would Jamaican drivers pay tolls?
- *Country risk:* In August 2000, Standard & Poor’s assigned its single-‘B’ long-term rating to Jamaica’s USD225 million 13.125% bond, indicating a high degree of perceived country risk among global lenders.
- *Construction risk:* Highway 2000 remains Jamaica’s largest construction project, involving an unprecedented amount of physical and logistical challenges; which could have delayed the project and driven up construction costs.
- *Currency risk:* Tolls are set and collected in local currency, although there is an exchange rate factor in the toll formula, and if the value of the Jamaica dollar falls significantly, this could increase rates and dampen demand.

Upon commercial close of the East-West Highway, NROCC and Bouygues jointly approached the MDBs for long-term refinancing. However the MDBs could not give their approvals within the tight timetable demanded by the sponsors. This is where commercial lender

⁴⁰ Interview with Mr. Lu Qin, Jamaica North-South Highway Company

⁴¹ Interview with Ivan Anderson, Managing Director NROCC

stepped in but with higher risk premiums.

“The MDBs are very protective of their AAA rating. Commercial banks will at least price the risk in the interest rate; whereas MDBs just won’t do the loan.”⁴¹

Five years later, the MDBs revisited the project, were impressed with the way the project was progressing and decided to get on board. Compared to the commercial banks, obtaining financing from MDBs was a much more involved process in terms of time and effort largely because MDBs insist on addressing fundamental development issues. However, the benefit to the borrower is considerable; its projects benefit from longer maturities, lower interest rates, in addition to higher social and environmental safeguards.

5.4 Toll rates and willingness to pay

Toll roads were an entirely new concept in Jamaica, and alternative free roads were not much longer in distance than the tolled roads. As recently as March 2016, the Prime Minister of Jamaica announced a 25% subsidy on tolls on the just-opened North-South Link ⁴², to allow drivers to become accustomed to using the new road. This policy was a repetition of the opening of the Portmore Causeway in 2006, when toll rates were subsidised for about two years.

In both phases of the Highway, the operators learned that traffic forecasting in Jamaica is an inexact science: it was virtually impossible to accurately predict all the exogenous factors that affect highway usage. What was clear was that actual traffic was lower than forecast. Jamaica is not alone in this phenomenon: in the UK, after 10 years of operation the M6 tollroad reported traffic of 43,000 vehicles per day in 2013, versus previous forecasts of about 74,000.⁴³ Current toll rates on the East-West Highway are shown in Table 3 below.

Table 3
Toll Rates on East-West Highway

EAST-WEST HIGHWAY:	4-Jul-15	2-Jul-16	Percent Increase in J\$	Percent Increase in US\$
Vineyards Toll Plaza:				
Class 1	\$360.00	\$400.00	11.1%	3.0%
Class 2	\$520.00	\$580.00	11.5%	3.4%
Class 3	\$990.00	\$1,100.00	11.1%	3.0%
Spanish Town Toll Plaza:				
Class 1	\$130.00	\$140.00	7.7%	-0.2%
Class 2	\$200.00	\$220.00	10.0%	2.0%
Class 3	\$360.00	\$400.00	11.1%	3.0%
Portmore Toll Plaza:				
Class 1	\$180.00	\$200.00	11.1%	3.0%
Class 2	\$290.00	\$320.00	10.3%	2.3%
Class 3	\$550.00	\$610.00	10.9%	2.8%
May Pen Toll Plaza:				
Class 1	\$90.00	\$100.00	11.1%	3.0%
Class 2	\$140.00	\$160.00	14.3%	6.0%
Class 3	\$280.00	\$320.00	14.3%	6.0%
Avg Increase:			11.2%	3.1%

Source: Toll Authority of Jamaica

⁴² Jedial Carter, “PM announces 25% discount in North-South toll rates,” Jamaica Observer, March 23, 2016, <http://www.jamaicaobserver.com/news/PM-announces-25--discount-in-toll-rates-for-North-South-link>.

⁴³ Mary Griffin, “M6 Toll 10 years on : Success or failure?” Birmingham Mail, January 2, 2014, <http://www.birminghammail.co.uk/news/local-news/m6-toll-10-years--6458817>.

Toll rates expressed in Jamaica dollars rose by an average of 11.2% between 2015 and 2016; and 3.1% when in US dollars (as allowed in the pricing formula). Toll rates on the North-South Link are shown in Table 4 below.

Table 4
Toll Rates on North-South Link

NORTH-SOUTH LINK:	JAS	USD	USD/km
Caymanas to Ocho Rios:			
Class 1	\$1,220.00	\$9.66	\$0.15
Class 2	\$2,450.00	\$19.40	\$0.29
Class 3	\$3,700.00	\$29.30	\$0.44
Distance in km	66.14		
Unity Valley to Ocho Rios:			
Class 1	\$450.00	\$3.56	\$0.15
Class 2	\$880.00	\$6.97	\$0.29
Class 3	\$1,340.00	\$10.61	\$0.44
Distance in km	23.97		

Source: Toll Authority of Jamaica

For class 1 vehicles, tolls are equivalent to USD0.15 cents per km, rising to USD0.44 cents for heavy goods vehicles. These tariffs are not dissimilar from toll rates in North America and Europe.

5.5 Benefits of Highway 2000

The East-West Highway has spurred new investments in secondary towns that are now within commuting distance of Kingston. May Pen has seen significant population growth over the past decade, with new housing developments being built close to the Highway. The North-South Link has dramatically cut transit times between the north and south coasts, opening up new possibilities in agriculture and tourism; tour companies now take cruise ship passengers on visits to Kingston.

Both Bouygues and CHEC are seeking new construction opportunities in Jamaica. As part of its Concession, CHEC has access to 1,200 acres of Government-owned lands adjacent to the North-South Link, and are planning to build 2,400 new hotel and residential rooms in St. Ann ⁴⁴ within the near future. CHEC plans to move swiftly on these developments because they have a financial incentive to do so. Without aligning incentives, the secondary commercial developments along the toll roads (gas stations, hotels, shopping malls, etc.), may be slower in coming.

⁴⁴Bennett, "CHEC adds 1,400 more rooms to planned North South Highway hotels." May 9, 2015



The East-West Highway in Jamaica

5.6 Fiscal impact

One of the risks of PPPs come from unintended fiscal impacts arising from long-term contracts, which often give rise to unbudgeted expenses by the host governments. Since 2002, NROCC has received funding from long-term loans and bonds, as well as advances from GOJ to cover debt servicing.

Over the same period NROCC has invested heavily in the project. In looking at Highway 2000 in its entirety, we must take into account the Government's additional expenditures in construction works, project development, interest payments and toll subsidies. As shown in Table 5, GOJ invested a total of USD486.8 million into Highway 2000, or 37% of the total.

To fund its investment in the East-West Highway, NROCC in 2002 issued Jamaica's first inflation-linked bonds, raising USD74.6 million on local and international markets. "Up to the end of 2015 when we last reviewed the effective cost of these bonds was approximately 15.5% in JA\$ and 7.8% USD. This compares favourably with the 9.375% US Bonds which were issued by NROCC in 2011." ⁴⁵

To date NROCC has not received cash returns from its toll road investments. On the East-West Highway, it will receive 50% of Free Cash Flows (FCF), i.e. after deducting all operating and capital costs and debt service. The current forecasts are for free cash flows to commence in 2023.

NROCC spent USD120 million on the Mount Rosser Bypass, under an engineering, procurement and construction (EPC) contract with Bouygues. CHEC undertook to repay

⁴⁵Interview with Janet Wallace, Debt Management Branch, Ministry of Finance & the Public Service

**Table 5: Total Cost of Highway 2000
(USD million)**

	Phase 1 (Bouygues)	Phase 2 (CHEC)	Indirect GOJ Costs	TOTAL PROJECT COST
GOJ Investments:				
- GoJ Equity in Trans-Jamaica Highway	99.0	-	-	99.0
- Admin, Interest & Subsidy	-	-	183.7	183.7
- Mt. Rosser Bypass	-	120.0	-	120.0
- Grantor changes			40.5	40.5
- Lands Purchases	-	-	43.6	43.6
Total Government Investment	99.0	120.0	267.8	486.8
Private Investor Equity - Bouygues	27.0	-	-	27.0
Private Investor Equity - CHEC	-	144.0	-	144.0
Project Debt	198.0	456.0	-	654.0
Total Private Investment	225.0	600.0	-	825.0
TOTAL CAPITAL COST	324.0	720.0	267.8	1,311.8

Sources: NROCC, and Debt Management Branch, Ministry of Finance

NROCC this amount via a long-term bond which accrues interest of 3% per annum over the first 20 years of the Concession, then will be amortised by CHEC over the remaining 30 years at 6% per annum. Cash repayments by CHEC are forecast to commence in 2032.

With revenues from the highway operations not expected for the foreseeable future, GOJ must budget for continued finance charges on NROCC's debt. Interest charges in 2015 amounted to USD37.4 million, before foreign exchange losses. This level of finance costs is expected to continue over the foreseeable future.

5.7 Looking back, looking forward

One area where Highway 2000 scores highly is continuity. Regardless of which administration was in power, the project continued to progress, as shown in Figure 11.

Looking ahead, NROCC is actively planning new toll road projects, including the Montego Bay bypass and extension of the East West Highway to Williamsfield (Mandeville).

"There is no evidence of impropriety or irregularity in the award and implementation of the Concession Agreement governing Highway 2000...OCG is satisfied that the Highway 2000 project, as well as the variations to the terms of its implementation, have been executed in accordance with established GOJ procurement standards."⁴⁶

This clean bill of health was given by the OCG in 2007. No such investigation has as yet

⁴⁶Report on the Investigation Conducted into the Highway 2000 Concession and Administration Agreement. Office of the Contractor-General. 2007.

**Figure 11
Timetable of Phases One and Two**

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	
Political Administration	PNP									JLP			PNP			JLP			
PHASE ONE: EAST-WEST HIGHWAY																			
Project launch	★																		
Development work	■	■	■																
Bouygues Concession signed			★																
Financial close Phase 1				★															
Construction Phase 1					■	■	■	■	■	■									
Opening first leg					★														
Opening Portmore Causeway									★										
PHASE TWO: NORTH-SOUTH LINK																			
Construction of Mt Rosser Bypass										■	■	■	■	■	■	■			
CHEC Concession signed														★					
Opening of Mt. Rosser Bypass																★			
Construction of North-South Link															■	■	■	■	■
Opening of North-South Link																			★

Key: ★ Milestones
 ■ Construction

been done by the OCG on the North-South Link. It is not known whether one is in process or planned.

5.8 Conclusion: Is Highway 2000 a “good” project?

Certainly from the point of view of its users the Highway has proven its utility. About 65,000 drivers per day, upwards of a quarter of a million people, would find it intolerable to return to the congestion and frustration that characterised their daily commute prior to the toll road. By reducing travel times, the Highway has made its users more productive, both in their work and personal lives.

Traffic volumes on the North-South Link are yet to take off, but this does not seem to worry its owners unduly. CHEC is not passively waiting for traffic to grow on their portion of the Highway, but intend to drive traffic growth with the secondary projects currently being developed.

Although the Government ended up investing more than anticipated, and for a longer payback period, Highway 2000 still generated USD825 million in Foreign Direct Investment (FDI). This raised Jamaica’s profile as an investment destination, with the capacity to implement large construction projects of this nature.

Both phases of the Highway had minimal overruns in time and budget; almost unheard of on previous large road projects in Jamaica. In the thirteen years that the East-West Highway has been operational, motorists have benefitted from higher standards of maintenance than on public roads. Because users pay for the service, they are quick to call the Toll Authority, to report even small potholes in the road surface.

Perhaps most importantly, Highway 2000 spurred new economic activity outside of the

Kingston Metropolitan Area (KMA). Satellite towns like May Pen have seen several new housing and commercial developments since the opening of the Highway. Anecdotal evidence suggests that city dwellers are increasingly opting to live in the rural areas because of the perceived better quality of life, and commute to Kingston (this would be a good area for research, into the economic and spatial impacts of the Highway).

The shift in population growth from urban to rural relieves pressure on Kingston's overburdened social and physical infrastructure. In addition, the capital is beginning to see some benefits from tourism, as it is now feasible to offer city tours to hotel and cruise ship guests on the North Coast.

The fiscal cost of Highway 2000 to the Government has been higher than anticipated. According to its initial feasibility study, the project should by now be generating cash returns to NROCC, to help retire its debt. However expectations for cash profits have now been revised to commence around 2023. Even under the best circumstances project execution rarely goes according to plan; in the case of Highway 2000 the unforeseen and prolonged global recession that commenced in 2008 adversely impacted the project. Unresolved environmental issues remain including runoff and siltation at Mammee Bay in St. Ann, and protection of slopes along sections of the North-South Link.

Highway 2000 reflects positive trends in the Jamaican economy: FDI, tourist arrivals and the World Bank's Ease of Doing Business Rankings have all shown upward movement within recent years. Hopefully, Highway 2000 will propel Jamaica further along the "road" to economic prosperity.

References

- Anderson, Ivan P. Highway 2000 Lessons Learned. National Road Operating and Constructing Company (NROCC). 2014.
- Annual Report 2014-2015. Report. National Road Operating and Constructing Company.
- Associated Press. "CHEC at centre of Bangladesh bribery scandal." Jamaica Observer, July 27, 2011. <http://www.jamaicaobserver.com/news/CHEC-at-centre-of-Bangladesh-bribery-scandal>.
- Astris Finance. "Astris Closed a USD 285m Financing Package for Highway 2000 in Jamaica." News release, February 2011. <https://www.astrisfinance.com/news//february-2011-astris-closed-a-usd-285m-financing-package-for-highway-2000-in-jamaica>.
- Bennett, Karena. "CHEC adds 1,400 more rooms to planned North South Highway hotels." Jamaica Observer, May 9, 2015. http://www.jamaicaobserver.com/business/CHEC-adds-1-400-more-rooms-to-planned-North-South-Highway-hotels_18885353.
- Bernet, Marc S. Eastern and Western paradigms: A comparative analysis and evaluation of infrastructure development models through the Jamaica Highway 2000 Case Study. Report. Global Projects Centre, Stanford University. 2016.
- Carter, Jedrael. "PM announces 25% discount in North-South toll rates." Jamaica Observer, March 23, 2016. <http://www.jamaicaobserver.com/news/PM-announces-25--discount-in-toll-rates-for-North-South-link>.
- CL Environmental. Environmental Assessment Jamaica North South Highway – Caymanas to Linstead Realignment. Report. 2014. http://nepa.gov.jm/new/services_products/applications/eias/docs/StCatherine/NS_Highway/North_South_Caymanas_Linstead_Realignment.pdf
- CL Environmental. Archaeological Impact Assessment; Highway 2000 North-South Link; for the Jamaica National Heritage Trust. Report. 2012. <http://nepa.gov.jm/eias/highway2000/North-South-Link-Caymanas-Linstead/NROCC%20ARCHAEOLOGICAL%20IMPACT%20ASSESSMENT%202.pdf>.
- Davidson, Vernon. "Highway blamed for environmental damage." Jamaica Observer, August 6, 2016. http://www.jamaicaobserver.com/news/Highway-blamed-for-environmental-damage_69694.
- Dessau Soprin. Highway 2000 project Preliminary Design phase Economic Cost-Benefit Analysis. Report. 2000. Environmental Assessment Jamaica North South Highway – Caymanas to Linstead Realignment; CL Environment, 2014
- Environmental Impact Assessment, Proposed North-South Link, Caymanas to Linstead. Report. CL Environmental Ltd, 2012. http://nepa.gov.jm/eias/highway2000/North-South-Link-Caymanas-Linstead/EIA_Highway2000_FINAL_REPORT_Caymanas%20to%20Linstead%20reduced.pdf.
- Environmental Impact Assessment, Proposed North-South Link, Moneague to Ocho Rios. Report.

CL Environmental Ltd, 2012. http://nepa.gov.jm/new/services_products/applications/eias/docs/highway2000/North-South-Link-Moneague-OchoRios/final_report_eia_highway2000_moneague_to_ochorios2012.pdf.

EnviroPlanners Limited. Environmental Impact Assessment for Highway 2000, the Mount Rosser Bypass, Linstead to Moneague. Report. August 2007. <http://nepa.gov.jm/eias/StCatherine/Mt.Rosser/Mt.Rosser-eia.pdf>.

European Investment Bank. "International financial institutions give green light to extend Jamaica's only toll road." News release, April 7, 2011. http://europa.eu/rapid/press-release_BEI-11-50_en.htm. Financial Statement Assessment of NROCC. Report. Auditor General's Department.

Government of Jamaica. Invitation to Express Interest to Prequalify for the Development, Construction, Operation and Maintenance of Highway 2000, Jamaica. 1999.

Griffin, Mary. "M6 Toll 10 years on : Success or failure?" Birmingham Mail, January 2, 2014. <http://www.birminghammail.co.uk/news/local-news/m6-toll-10-years--6458817>.

Highway 2000 Resettlement Action Plan phase - 1b-1: Sandy Bay to Four Paths. Report. National Road Operating and Constructing Company (NROCC). Land Acquisition Unit, 2009.

Jamaica. Concession Agreement: NROCC and Trans Jamaican Highways Ltd. 2001.

Jamaica Environment Trust. Review of the EIA for the "Proposed Highway 2000 North South Link: Moneague to Ocho Rios" Highway Construction Project Jamaica done by CL Environmental Limited. Report. 2013. http://www.jamentrust.org/wp-content/uploads/2016/03/eia_review_2013-01_highway_2000_moneague_to_ochorios.pdf.

Jamaica's Pathway to the Future. Report. National Road Operating and Constructing Company (NROCC). 2002.

Jamaica. The Toll Roads Act. 2002. <http://www.tollauthority.gov.jm/TollAuthorityAct.pdf>.

Lesson Learned on the North-South Highway # 1: Development of Design Documents and Construction Works. Report. National Road Operating and Constructing Company (NROCC). 2016.

"Local engineers say North-South highway landslide raises serious questions." Jamaica Gleaner, June 6, 2016. <http://jamaica-gleaner.com/article/news/20160606/local-engineers-say-north-south-highway-landslide-raises-serious-questions>.

McIntosh, Douglas. "Cabinet Approves Contract with CHEC for Southern Coastal Highway." Jamaica Information Service, October 27, 2016. <http://jis.gov.jm/cabinet-approves-contract-chec-southern-coastal-highway/>.

"Mount Rosser bypass most significant road engineering project." Jamaica Observer, August 8, 2014. <http://www.jamaicaobserver.com/news/Mount-Rosser-bypass-most-significant-road-engineering-project>.

Ministry of Transport and Works. "STATEMENT FROM DR. the HON. OMAR DAVIES re: HIGHWAY

200 NORTH-SOUTH LINK." News release, November 27, 2012. <http://nepa.gov.jm/Press%20Release-North-South-Highway-Environmental-Concerns.pdf>.

Office of the Contractor General. "Open Statement by the OCG Regarding the Proposed Highway 2000 North South Link and the Container Transshipment Hub Projects." News release, May 1, 2012. <http://www.ocg.gov.jm/ocg/releases/open-statement-ocg-regarding-proposed-highway-2000-north-south-link-and-container>.

Pickersgill, Robert. "Remember, I told you." Jamaica Gleaner, December 8, 2007. <http://old.jamaica-gleaner.com/gleaner/20071208/letters/letters2.html>.

Porter, Racquel . "NWA signs US\$64m deal with Chinese to widen Mandela Highway." Jamaica Observer, July 22, 2016. <http://www.jamaicaobserver.com/news/NWA-signs-US-64m-deal-with-Chinese-to-widen-Mandela-Highway>.

Porter, Racquel . "Section of Highway 2000 named after PJ Patterson." Jamaica Gleaner, April 17, 2015. <http://www.jamaicaobserver.com/news/Section-of-Highway-2000-named-after-PJ-Patterson>.

"Portmore Fishing Village Opens." Jamaica Information Service, October 31, 2009. <http://jis.gov.jm/portmore-fishing-village-opens/>.

"Privy Council to hear Portmore toll case October." Jamaica Observer, April 21, 2007. http://www.geocities.ws/portmore_tollinfo/events.htm.

Report on the Investigation Conducted into the Highway 2000 Concession and Administration Agreement. Office of the Contractor-General. 2007.

Relocation of Portmore Causeway Fishing Village. Report. National Road Operating and Constructing Company (NROCC). 2012.

Saunders, Alpheia. "Land swap deal made highway possible — Phillips." Jamaica Observer, May 10, 2017. http://www.jamaicaobserver.com/news/land-swap-deal-made-highway-possible-8212-phillips_98374?profile=1373&template=MobileArticle.

"Section of North-South Highway affected by landslide still closed." Jamaica Gleaner, June 3, 2016. <http://jamaica-gleaner.com/article/news/20160603/section-north-south-highway-affected-landslide-still-closed>.

Caribbean Development Bank
P.O. Box 408, Wildey
St. Michael
Barbados, W.I.
BB11000

www.caribank.org

