THE GRAND INTEROCEANIC CANAL IN THE ECONOMIC DEVELOPMENT OF NICARAGUA, CENTRAL AMERICA AND LATIN AMERICA

WORLD AND REGIONAL MULTIMODAL LOGISTICAL CENTER

DR. PAUL OQUIST
Minister
Private Secretary for National Policies
Presidency of the Republic
Nicaragua

TURKISH CONTRACTORS ASSOCIATION
23 March 2015
NICARAGUA IS A COUNTRY WITH A DEMONSTRATED CAPACITY TO FORMULATE AND ACHIEVE STRATEGIC OBJECTIVES

NATIONAL HUMAN DEVELOPMENT PLAN 2007/2016

OBJECTIVE:

ECONOMIC GROWTH WITH MACROECONOMIC STABILITY, JOB CREATION, POVERTY AND INEQUALITY REDUCTION
Economic growth with macroeconomic stability

Investment Boom

5% average growth 2011-2013

Central America Economic Growth
(Percent change)

Highest Economic Growth in Central America

Exports doubled between 2006 and 2012

Investment record: More than 5 times 2006

1-digit inflation and decreasing

High International Reserves: 2.8 times the monetary base, allows free exchange and currency stability
Fewer unemployment
More work: 38.9% more than in 2006
Formal employment growth: 77.3% more people registered than in 2006

Sustainable fiscal deficit
Sustainable fiscal deficit at -0.3 in 2014
Constant reduction of national debt

2014/2006: +77.3%
(309,678 people)

2014/2006: +38.9%
(893,539 people)
POVERTY AND INEQUALITY REDUCTION

General poverty measured by consumption

Extreme poverty measured by consumption

Declining income inequality in Latin America, by country: 2000-2011

Annual % change in the Gini coefficient

### GREATER GENDER EQUALITY

**World Gender Gap Index 2013**
- World Economic Forum, Davos

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Iceland</td>
</tr>
<tr>
<td>2</td>
<td>Finland</td>
</tr>
<tr>
<td>3</td>
<td>Norway</td>
</tr>
<tr>
<td>4</td>
<td>Sweden</td>
</tr>
<tr>
<td>5</td>
<td>Denmark</td>
</tr>
<tr>
<td>6</td>
<td><strong>Nicaragua</strong></td>
</tr>
<tr>
<td>7</td>
<td>Rwanda</td>
</tr>
<tr>
<td>8</td>
<td>Ireland</td>
</tr>
<tr>
<td>9</td>
<td>Phillipines</td>
</tr>
<tr>
<td>10</td>
<td>Belgium</td>
</tr>
<tr>
<td>11</td>
<td>Switzerland</td>
</tr>
<tr>
<td>12</td>
<td>Germany</td>
</tr>
<tr>
<td>13</td>
<td>New Zeland</td>
</tr>
<tr>
<td>14</td>
<td>Netherlands</td>
</tr>
<tr>
<td>15</td>
<td>Latvia</td>
</tr>
<tr>
<td>16</td>
<td>France</td>
</tr>
<tr>
<td>17</td>
<td>Burundi</td>
</tr>
<tr>
<td>18</td>
<td>South Africa</td>
</tr>
<tr>
<td>19</td>
<td>Canada</td>
</tr>
<tr>
<td>20</td>
<td>United States</td>
</tr>
</tbody>
</table>

Nicaragua is #1 in the World with regard to women in the National Cabinet, 57% (IPU, 2013)

"Women in Politics 2014"

Percentage of women in parliaments of the world

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>PERCENTAGE OF WOMEN</th>
<th>WOMEN / SEATS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RWANDA</td>
<td>63.8%</td>
</tr>
<tr>
<td>2</td>
<td>ANDORRA</td>
<td>50.0%</td>
</tr>
<tr>
<td>3</td>
<td>CUBA</td>
<td>48.9%</td>
</tr>
<tr>
<td>4</td>
<td>SEYCHELLES</td>
<td>43.8%</td>
</tr>
<tr>
<td>5</td>
<td>SWEDEN</td>
<td>43.6%</td>
</tr>
<tr>
<td>6</td>
<td>SENEGAL</td>
<td>43.3%</td>
</tr>
<tr>
<td>7</td>
<td>FINLAND</td>
<td>42.5%</td>
</tr>
<tr>
<td><strong>8</strong></td>
<td><strong>NICARAGUA</strong></td>
<td><strong>42.4%</strong></td>
</tr>
<tr>
<td>9</td>
<td>ECUADOR</td>
<td>41.6%</td>
</tr>
<tr>
<td>10</td>
<td>SOUTHAFRICA</td>
<td>44.8%</td>
</tr>
</tbody>
</table>

- It went from 18% in 2006 to 42% in 2012.
- The new law 50% -50% in the National Assembly and mayors, vice mayors and councilors, will take Nicaragua to **second place in the world in 2016**.

Women in positions of Minister of Defense, Minister of Interior, National Police Chief, General Prosecutor and President of the Supreme Court.
UNACCOMPANIED MIGRANT CHILDREN

Captures of unaccompanied minors from Central America by the US "Border Patrol". By country (October 1st, 2013 - July 30th, 2014)

- Honduras: 16,546
- Guatemala: 14,086
- El Salvador: 13,301
- Nicaragua: 178

The children’s reasons to leave their homes

Most of migrant children come from extremely violent cities in Central America

Fuente: BBC

www.breitbart.com; 5/jun/2014
The National Police of Nicaragua (PNN) is a leader in Central America and in the world, as a police model with a "preventive, proactive and community" approach.

INVESTMENT BOOM

**Ratio FDI/GDP in Central America, 2013 (%)**

<table>
<thead>
<tr>
<th>Country</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nicaragua</td>
<td>12.3</td>
</tr>
<tr>
<td>Honduras</td>
<td>5.6</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>5.4</td>
</tr>
<tr>
<td>Guatemala</td>
<td>2.4</td>
</tr>
<tr>
<td>El Salvador</td>
<td>0.6</td>
</tr>
</tbody>
</table>

**Investment Portfolio**

US$ 10.9 billions by 2014

- Electronic Manufacturing: US$ 600 million
- Mining Exploration: US$ 359.4 million
- Oil Exploration: US$ 353.6 million
- Tourism: US$ 555 million
- Telecommunications: US$ 2,018.3 million (US$2.7 billion in 2007-2016)
- Agroindustry: US$ 334.3 million
- Ports: US$ 281 million
- Free Zones: US$ 644.6 million
- Other: US$ 121 million

**Ratio FDI/GDP, 2006 to 2013 (%)**

- 2006: 4.2
- 2007: 5.1
- 2008: 7.6
- 2009: 5.3
- 2010: 5.9
- 2011: 10.0
- 2012: 12.2
- 2013: 12.3

Greater economic growth to increase work and eradicate extreme poverty.
1. Productive

2. Infrastructure

3. Expansion and transformation of the Energy Matrix
   - Hydropower
   - Geothermal
   - Other projects

4. Refinery

5. Communications

6. Grand Interoceanic Canal
PRODUCTIVE INVESTMENTS

New Slaughterhouse: SUKARNE, FEDEGAN, Taiwan, Panama
206 rural agro-industrial projects
FISHING AND MINING RECONVERSION

FISHING CONVERSION

- $600 million of potential
- Leverage at least 30%
- Conversion of lobster fishing by diving to fishing creels
- Fisheries of scales and aquaculture
- Ports, airports, energy and telecommunications for the export of fresh fish

MINING CONVERSION

- Installing mini mills
- Higher yields
- Best prices
- Elimination of Azogue (Mercury)
- Training
- Equipment
- Support of mining companies for explosives and artisanal miners can extract

About 90,000 km2 of territory in the Caribbean Sea recovered

✓ Coral potential for sustainable ecotourism development

✓ Fisheries Wealth (shoals of fish lobster and conch)
  - 900 species, including red snapper, grouper and possibly tuna.
  - Production of lobster tail could double
  - Other high-value species such as snails.
TRANSPORT INFRASTRUCTURE

ROADS

Acoyapa-San Carlos & Santa Fe Bridges
Roads improvements in the Caribbean Coast
La Costanera; Managua – Rama; La Libertad – Santo Domingo; Boaco – Muy Muy – Río Blanco; Ruta alterna a Masaya;
Nejapa – Port Sandino

PORTS

Deep sea Port in the Caribbean
Bilwi
Harbor Cruise, San Juan del Sur, Rivas (ROYAL CARIBBEAN)
AIRPORTS IN TOURIST SITES

- Punta Huete (Managua)
- Montelimar (Managua)
- Playa Iguana (Guacalito de la Isla)
- Isla de Ometepe (Rivas)
- San Carlos, Rio San Juan
- Airports improvements in the Caribbean
- San Juan de Nicaragua (Rio San Juan)
• 2012-2020: U.S. $ 2.9 billion investment, over mainly foreign direct investment

• 103% of demand (peak) recorded in 2012 and 97% and 75% of the planned by 2016 and 2020.
Nicaragua Energy Projects

**Geothermal**
- Momotombo
- San Jacinto-Tizate
- Planta Binaria
- Casita-San Cristóbal (138 MW; US$ 485.0 mill)

**Solar**
- La Trinidad, Diriamba (50.5MW)
- Chinandega (4 stages of 25MW; 100MW)

**Other hydroelectric projects:**
- Copalar
- El Carmen
- Piedra Fina
- Corriente Lira

**SOLAR PANELS, MICRO AND SMALL HYDROELECTRIC PROJECTS FOR ISOLATES AREAS**

**HYDROELECTRIC TUMARIN AND BOBOKÉ, RAAS 323 MW (253MW + 70MW); US$ 1.345 million**

**Electricity coverage rose from 54% in 2007 to 76% in 2013, with the target of 85% by 2017**

**Amayo I, II, III**
- Eolo (Rivas)
- La Fe San Martín (Rivas)
- ALBA Rivas (Rivas) (187 MW; US$ 264.2 mill)
CENTRAL HIDROELÉCTRICA DE TUMARÍN, RAAS

TUMARÍN
US$1,100M
253 MW
5,000 Jobs

BOBOKÉ
US$235M
70 MW
2,500 Jobs

US$1,345M
323 MW
7,500 Jobs
INVESTMENT OPPORTUNITIES IN HYDROELECTRIC PROJECTS

Plants in Operation
- Santa Bárbara
- Centroamérica
- Las Cañas
- El Sardinal
- El Wawule
- Siempre Vivas
- Salto Grande

Projects in Construction
- Pantasma
- Larreynaga
- Tumarín
- Boboké

Licensed Projects
- Salto Y-Y
- Piedra Puntuda
- El Diamante

Candidate projects
- Copalar Bajo
- Consuelo
- Pajaritos
- La Estrella
- Valentín
- Piedra Fina
- Brito
- Corriente Lira
GEOTHERMAL PROJECTS

• Momotombo
• San Jacinto-Tizate
• Casita-San Cristóbal

• Generation: 138 MW
• Investment: US$ 485 million
GEOTHERMAL POTENTIAL (MASTER PLAN) ESTIMATED 1,500 MW
## PROYECTOS GEOTÉRMICOS

<table>
<thead>
<tr>
<th>Proyecto</th>
<th>Potencia (MW)</th>
<th>Costo (US$ millones)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Momotombo</td>
<td>138</td>
<td>485</td>
</tr>
<tr>
<td>San Jacinto-Tizate</td>
<td>111</td>
<td>532</td>
</tr>
<tr>
<td>Casita-San Cristóbal</td>
<td>102</td>
<td>477</td>
</tr>
</tbody>
</table>

### Otros Proyectos Geotérmicos

- **Caldera de Apoyo**
  - 153 MW
  - US$ 734.4 millones

- **Volcán Mombacho**
  - 111 MW
  - US$ 532.8 millones

- **Caldera de Masaya**
  - 99.5 MW
  - US$ 477.6 millones
SPA GEOTÉRMICO BLUE LAGOON, ISLANDIA

- Situado al suroeste de Islandia
- La laguna es alimentada por la producción de agua de la planta geotérmica Svartsengi
- Aguas templadas ricas en minerales y con propiedades curativas
- Una de las atracciones más visitadas
WIND PROJECTS

- Amayo I, II, III
- Eolo
- La Fe San Martín
- Alba Rivas

- Generation: 187 MW
- Investment: US $ 264.2 million
WIND POTENTIAL IN NICARAGUA

VESTMENT OPPORTUNITIES IN WIND PROJECTS
BIOMASS ENERGY (PRIVATE SECTOR)

• Projects based on agrobusiness plants residues:
  • Sugarcane
  • Oil palm (oil)
  • Urban waste

<table>
<thead>
<tr>
<th>Project</th>
<th>Present Contribution (MW)</th>
<th>Net Generation in 2012 (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nicaragua Sugar Estates Ltd. Sugar Mill</td>
<td>30</td>
<td>77.3</td>
</tr>
<tr>
<td>San Antonio Sugar Mill</td>
<td>30</td>
<td>48.5</td>
</tr>
</tbody>
</table>

• CASUR – Benjamín Zeledón Sugar mill (2015): 24MW; US$24.8 millions
• Montelimar Sugar mill (2016): 30MW; US$27.8 millions

2012-2016: 54MW* y US$52.6 Millions

*on season
SOLAR POWER PROJECT

LA TRINIDAD, DIRIAMBA, NICARAGUA

5,880 solar panels
1.38 MW
1,200 homes covered
US$ 12 million donated by Japan

The first in Nicaragua and the largest in Central America
The short-term goal is a solar mega-project that is expected to produce **50.5 MW**

Private sector new application for 80 MW solar energy
NEW SOLAR POWER PROJECT

- Solar Power Plant HMV Pioneer Nicaragua
- Total estimated capacity 100MW in four stages of 25MW
- A 6 Km de Chinandega
SOLAR RADIATION MAP IN NICARAGUA
FUEL SAVINGS FOR THE IMPLEMENTATION OF RENEWABLE ENERGY PROJECT. PERIOD 2013-2020
In the Bloomberg and Interamerican Development Bank (IDB) Climatescope, second edition, Brazil, Chile and Nicaragua top the list of most attractive markets for clean energy in Latin America and the Caribbean.

Despite being the second poorest country in the region, Nicaragua was ranked among the first three, just behind Brazil and Chile, due to the high penetration of renewables in its energy matrix and significant flow of investment in proportion to its small economy.

Nicaragua was the country that received the highest score in the categories “Suitable Setting and Clean Energy”, “Investment parameters” and “Loans to Projects relating to Climate Change”.

In 2012, Nicaragua saw its installed renewable energy capacity grow 40% due to the US$ 292 million that was allocated to clean energy market in the context of an economy of US$ 10,500 million.
SIEPAC PROJECT

DESCRIPTOR DEL PROYECTO
Línea Siepac Primer Sistema de Transmisión Regional

Costo del Proyecto: US$494 millones

INCLUYE PREVISTA PARA SEGUNDO CIRCUITO

INCLUYE PREVISTA PARA SEGUNDO CIRCUITO
INDUSTRIAL COMPLEX "SUPREMO SUEÑO DE BOLIVAR"

• Refinery with a processing capacity of 140,000 b / d, US$ 3.6 billion
• Petrochemical Industry: US$ 2.8 billion

FUEL STORAGE COMPLEX IN MIRAMAR

Fuel Distribution Plant Miramar 1.08 million barrels, US$ 306 million

• Pipeline Monkey Point-Puerto Sandino: $ 270 million
• GLP Project: US$ 25.9 million

Storage complex in Corinto

Total Industrial Complex Investment : US$ 6,700 million
In 2020, Nicaragua will be a net exporter of electricity and petroleum.

In 2006-2007, Nicaragua was a country of "blackouts" by 8, 10 and even 12 hours a day.
NICASAT 1

FIRST COUNTRY IN CENTRAL AMERICA WITH ITS OWN SATELLITE

In orbit by 2016
Investment US$ 300 million, 15 years of lifetime

2017: A Second Satellite, US$ 300 million
With support of China and Korea

REGIONAL CENTER FOR ADVANCED STUDIES IN BROADBAND FOR DEVELOPMENT

The Center will train over the next 10 years to 12 thousand professionals linked to telecommunications throughout the Central American region.
With support of Korea and IDB.

Expansion of Broadband
US$ 400 million

WORLD CLASS COMMUNICATIONS FOR A REGIONAL AND GLOBAL LOGISTICS CENTER
"Another issue that is drawing international attention is the project of construction of Nicaragua Canal, an initiative that the government of President Daniel Ortega seeks to develop in order to compete with Panama and offer an alternative to the transport of goods."

"The policies of the government of Daniel Ortega continue attracting even more investment and interest by international companies especially Chinese, Russian and American."

"Nicaragua is now an interesting destination for business because of the consensus reached between the government and the private sector."
WE ARE GROWING AT 5% BUT TO MEET THE BASIC NEEDS OF NICARAGUAN PEOPLE WOULD HAVE TO GROW AT 8% AND 10% OR MORE TO ERRADICATE EXTREME POVERTY, REFOREST THE COUNTRY, TO ADAPT TO CLIMATE CHANGE AND INCREASING THE RESILIENCE OF OUR ECOSYSTEM

**STRATEGY:**
- TAKE ADVANTAGE OF GEOGRAPHICAL POSITION AND WATER RESOURCES

**ACTION:**
THE CONSTRUCTION OF THE GRAND INTEROCEANIC CANAL
WHAT ARE THE EXPECTED ECONOMIC AND SOCIAL IMPACTS?
**THE GRAND INTEROCEANIC CANAL OF NICARAGUA: MAIN IMPACTS EXPECTED**

**Economic Growth in Nicaragua with and without Grand Canal**

<table>
<thead>
<tr>
<th>Year</th>
<th>With Canal</th>
<th>Without Canal</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>3.3%</td>
<td>5.7%</td>
</tr>
<tr>
<td>2011</td>
<td>5%</td>
<td>4.6%</td>
</tr>
<tr>
<td>2012</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>2013</td>
<td>4.7%</td>
<td>4.9%</td>
</tr>
<tr>
<td>2014</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>2015</td>
<td>10.3%</td>
<td>14.4%</td>
</tr>
<tr>
<td>2016</td>
<td>11.9%</td>
<td>10.1%</td>
</tr>
<tr>
<td>2017</td>
<td>8.8%</td>
<td>4%</td>
</tr>
<tr>
<td>2018</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>2019</td>
<td>4%</td>
<td>4%</td>
</tr>
</tbody>
</table>

Source: PEF, IMF & Own estimates

The increase in Government revenue, will be a source of funding to fight extreme poverty.

**Formal employment in Nicaragua 2012-2018**

5th year (2018)

- More formal jobs than informal
- 1.2 million formal jobs
- 26% of Nicaraguans with bank relations in 2013; they could be 50% in 2020

**General Poverty in Nicaragua (Percentage points)**

- 403,583 people out of general poverty by 2018

**Extreme Poverty in Nicaragua (Percentage points)**

- 353,935 people out of extreme poverty by 2018

The multiplier effect will further reduce extreme poverty in later years.

**2012**

- 16.46% of GDP
- Estimated income US$ 1,897.40 million

**2013**

- Projected Income US$ 4,081.25 million

**2019**

- +115.10% more than 2013

**Economic Growth in Nicaragua with and without Grand Canal**

**GDP**

- 2012: 16.46% of GDP
- 2013: Estimated income US$ 1,897.40 million
- 2019: Projected Income US$ 4,081.25 million

**Income**

- 2013: US$ 1,897.40 million
- 2019: US$ 4,081.25 million (+115.10% more than 2013)

**General Poverty in Nicaragua**

- 2012: 403,583 people out of general poverty by 2018

**Extreme Poverty in Nicaragua**

- 2012: 353,935 people out of extreme poverty by 2018

**Source:** INIDE (1993-2009) & Estimaciones Propias
THE PANAMA ECONOMY HAS DOUBLED DURING THE LAST 7 YEARS DESPITE THE FINANCIAL AND ECONOMIC CRISIS
DIRECT IMPACTS OF THE CANAL AND SUB PROJECTS IN THE EMPLOYMENT

50,000 jobs in the construction stage

Operation: 3,700 jobs in 2020
12,700 in 2050

113 thousand jobs in free trade zone

More than 3000 jobs in resorts

• 25,000 foreign workers
• 25,000 nicaraguan workers

PLUS MULTIPLIER EFFECTS IN EMPLOYMENT THROUGHOUT THE ECONOMY
WHAT DOES THE GRAND INTEROCEANIC CANAL / WORLD AND REGIONAL LOGISTICAL CENTER CONSIST OF?
THE GRAND INTEROCEANIC CANAL OF NICARAGUA:
MULTIMODAL LOGISTIC CENTER FOR REGIONAL AND GLOBAL TRADE

1. A Ship Canal joining the Caribbean Sea and the Pacific Ocean
2. A Port at Punta Águila in the Caribbean coast
3. A port at Brito in the Pacific coast
4. A Free Trade Zone on the Pacific coast (Rivas)
5. An International Airport in Rivas
6. 595.66km of Roads, highways, access roads and 2 bridges
7. Tourist Complexes (Lodging for construction/operation, opening to tourism later)

US$40 TO 50 BILLION INVESTMENT
SELECTION PROCESS OF ROUTE

Previously Identified Routes

Eastern Segment of Routes:
• 1, 2 - Bluefields Bay and north of the Cerro Silva Reserve
• 3 - Bluefields Bay and central Cerro Silva
• 4 - Punta Gorda and Tule River
• 5 - Punta Gorda, Rio San Juan, San Carlos
• 6 - Indio Maiz, Rio San Juan and San Carlos
### Choice of route 4: It has superior economic cost, but it is the route with the lowest environmental and social impact

275.5Km Length, 280 m wide base, 30-33m depth

- **Theoretical Capacity:** 9,153 ships per year
- **Expected load for 2050:** 5,100 vessels per year (14 ships per day), with 30 hours of each boat traffic.

<table>
<thead>
<tr>
<th>Stretch</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>West section (Rivas)</td>
<td>25.9 Km</td>
</tr>
<tr>
<td>Caribbean Coast (mainland)</td>
<td>90.8 Km</td>
</tr>
<tr>
<td>Length by land</td>
<td>116.7 Km</td>
</tr>
<tr>
<td>Lake Atlanta</td>
<td>35.9 Km</td>
</tr>
<tr>
<td>Lake Nicaragua</td>
<td>106.8 Km</td>
</tr>
<tr>
<td>Pacífic stretch</td>
<td>1.7 Km</td>
</tr>
<tr>
<td>Caribbean stretch</td>
<td>14.4 Km</td>
</tr>
<tr>
<td>Length by water</td>
<td>158.8 Km</td>
</tr>
<tr>
<td>Stretch</td>
<td>Length</td>
</tr>
<tr>
<td>West section</td>
<td>25.9 Km</td>
</tr>
<tr>
<td>East section</td>
<td>126.7 Km</td>
</tr>
<tr>
<td>Lake Nicaragua</td>
<td>106.8 Km</td>
</tr>
<tr>
<td>Stretches Pacífic and Caribbean</td>
<td>16.1 Km</td>
</tr>
<tr>
<td><strong>Total Length</strong></td>
<td>275.5 Km</td>
</tr>
</tbody>
</table>
Adjustments on Route 4

Inland Port is less vulnerable to sea risks

- Increased protection against tsunamis
- A Road linking the Port to Tola
- A Rock Bund to be designed to enable better mix of salt and fresh water to mangrove

Healthy portion of Mangrove & most of Brito River will be preserved and the impact to Reserva Marina Isla La Anciana will be minimize
Adjustments on Route 4
West Entrance into the Lake (avoid populated areas)

Canal alignment and airport location changed to minimize impact in Rivas
Adjustments on Route 4
The Lake Section

There will be hydraulic dredging (suction) of sediment.
There will be no blasting inside the Lake.
Silt and fine materials will be by confined dumping. Sand and hard materials will be distributed along the south side of the Canal route.
Adjustments on Route 4
Exit from the Lake

The alignment has been changed for the output from the Lake to the eastern area of the Canal, in order to minimize the impact on the wetlands of San Miguelito.
The Grand Canal project is designed to not to do net use of water from Lake Nicaragua.

The locks will capture water from the Basin of River Punta Gorda, which otherwise would flow into the Caribbean Sea.

The supplementary water supply is provided through the Zarca Water Reservoir.

A system for water conservation consisting of nine basins to recycle water in both locks and Camilo Brito (three basins associated with each of the three chambers forming the lock) will be built. Should reduce the total demand for water sluice 60%. 

Adjustments on Route 4
Port Punta Aguila will be on reclaimed land

Port Punta Aguila will be on dredge filled reclaimed land with minimal impact on the Indigenous People.

All developments like Free Trade Zone will be confined to the reclaimed land.

Canal route avoids impact to Booby Cay.
Brito & Camilo Locks: 3 Chambers & 9 water recycling pools

Same design for both: three consecutive chambers, which would raise the boats over 10 meters by chamber, for a total of approximately 30 meters.

Effective dimension for each one of the three chambers: 520 meters (long) x 75 meters (W) x 27.6 meters deep (threshold).

Brito Lock: located on the west segment of the canal, near the Mono Negro River, approximately 14.5km from the Pacific Ocean.

Camilo Lock: located in the East segment of the Canal, near the confluence of Punta Gorda with Camilo Cano, approximately 13.7km from the Caribbean coast.
The locks will raise or fall the ships between the level of Caribbean / Pacific Sea and the water level of Lake Nicaragua (30.2 to 33.0 meters).

They will have the same design: they consist of three consecutive chambers, which would raise the ships over 10 meters by the camera, for a total of approximately 30 meters.

Effective dimension for each of the three chambers: 520 meters (long) x 75 meters (W) x 27.6 meters deep (threshold).

Each lock will require approximately 4.5 million cubic meters (Mm3) of concrete.
Comparison between the locks in the world

**BERENDRECHT LOCK**
- Current World’s largest lock
- Dimensions: 500 m x 68 m x 20 m
- Equipped with rolling gates
- No water saving basins
- Rik Thomas was design & construction manager (1984-1989)

**NEW PANAMA LOCKS (3rd lane)**
- Design based on Berendrecht lock
- Dimensions: 427 m x 55 m x 18.3 m
- Equipped with rolling gates
- Water Saving Basins
- SBE performed the reference design

**DEURGANCKDOK LOCK**
- Future largest lock in the world (2016)
- Design based on Berendrecht lock
- Dimensions: 500 m x 68 m x 22 m
- Equipped with rolling gates
- No Water Saving Basins
- SBE is Owner’s Engineer

**BRITO & CAMILO LOCK’S (CARIBBEAN COAST)**
- Future largest lock in the world (2020)
- Design based on Berendrecht lock – new Panama Locks
- Dimensions: 520 m x 75 m x 27.6 m
- Equipped with rolling gates
- Water Saving Basins
- SBE is Owner’s Engineer

References in lock design
**BRITO PORT**

- Design capacity: 1.68 million TEU / year. Approximately 80th in top 100 world’s container ports
- North Wharf Structure, 1.100 meters long, capable of supporting 200,000 DWT bulk carriers or 25,000 TEU container ship;
- West Wharf berthing facilities, 1,200 meters long, with capacity for:
  * Three container berths 70,000 DWT;
  * A jetty oil / fuel of 30,000 DWT;
  * 13 workboat berths
- Other marine services.

**ÁGUILA PORT**

- Design capacity: 2.5 million TEU / year. Approximately 58th in top 100 world’s container ports
- Wharf Structure for container ship 200,000 DWT;
- Berthing Facilities 1,300 meters long, with capacity for:
  * Three container berths 150 thousand DWT;
  * A jetty oil / fuel of 30,000 DWT;
  * 8 working boat docks;
- Other marine services.

**TWO PORTS WILL BE BUILT, 1 IN THE PACIFIC AND OTHER IN THE CARIBBEAN**
The Pacific breakwater would extend approximately 800 m from the shoreline on both sides of the canal. It will be constructed with armor rock sourced from the Brito Lock. The overall footprint of each breakwater will be about 62,000 square meters (m²), or 124,000 m² total for the two breakwaters.

The Caribbean breakwater would include two different structures, one at each side of the canal. The breakwater located to the north of the canal would extend south from Punta Aguila approximately 7 kilometers to a location about 3 kilometers southwest of Booby Cay. The breakwater located to the south of the canal would be located about 1 kilometers north of the mouth of the Rio Punta Gorda and would be oriented perpendicular to the shoreline and extend approximately 3.5 kilometers. The overall footprint of north breakwater would be about 238,000 m². The overall footprint of the south breakwater will be about 105,000 m². Combined, this would be approximately 343,000 m² total for the two breakwaters.
Bridge over the Panamerican Highway
80M high & 600M long
Agua Zarca Hidroelectrical Project will start operations simultaneously with the Grand Canal and provide power for the operation of the eastern Lock.

Canal operations require about 18 MW of electricity mainly for security operations (approximately 9 MW for each lock). Power will be supplied by Agua Zarca and the National Network through transmission lines that connect the Brito lock to the existing electrical substation Rivas and Camilo to the existing electrical substation Corocito.

HKND will have backup diesel generators in each of the locks to ensure reliable power in the event of a power outage.
The Canal will be the largest civil earthmoving operation in history

- 5,000 Mm³ of excavated material
  - 4,019 Mm³ of "dry" material from upland (rock and soil)
  - 980 Mm³ marine and freshwater dredging.
- 35 areas for material disposal along the canal
  - 3,400 Mm³ storage volume and a total area of 179 km²
  - These areas have been located to minimize environmental and social impacts. 715Mm³ of lake sediment will be placed in 3 disposal sites in the Lake.
  - *The final surface of these areas will be graded so that they can be restored to agricultural or forestry.*

Excavated material disposal areas (West)

- 7 Disposal areas
- 731Mm³ Material
- 4,880ha. area

Disposal sites for dredged material (Lake Nicaragua)

- 3 material disposal sites
- 610Mm³ of dredged material

Disposal sites for dredged material (East)

- 15 Disposal areas
- 6,644Mm³ of material
- 26,620ha Area
### CANAL STEP BY STEP

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>JULY, 2014</td>
<td>• PRESENTATION OF THE ROUTE</td>
</tr>
<tr>
<td>AUGUST 23-OCTOBER 15, 2014</td>
<td>• CENSUS FROM POPULATION AND PROPERTY</td>
</tr>
<tr>
<td>NOVEMBER 20, 2014</td>
<td>• PRESENTATION OF THE GRAND CANAL PROJECT</td>
</tr>
<tr>
<td>DECEMBER, 2014</td>
<td>• PRESENTATION OF FEASEABILITY STUDIES</td>
</tr>
<tr>
<td>DECEMBER 22, 2014</td>
<td>• CONSTRUCTION STARTS</td>
</tr>
<tr>
<td>DECEMBER 2019</td>
<td>• CONSTRUCTIONS ENDS</td>
</tr>
</tbody>
</table>

Construction starts on December 22, 2014 and ends on December 2019.
UPCOMING TENDERS

- "REFERENCE DESIGNS"
- "TENDER BRIEFS"

Locks
Land movements
Ports
Dredging
WHAT IS THE LOGIC OF THE GRAND INTEROCEANIC CANAL?
WORLD SEABORNE TRADE

GEOGRAPHICAL POSITION OF NICARAGUA

GEOGRAPHICAL PROXIMITY

Norfolk – Long Beach route
(Distances between Panama Canal and Grand Canal of Nicaragua)

Route by Panama Canal: 8,898 Km (4,804 Mi)
Route by Gran Canal of Nicaragua: 7,955 Km (4,295 Mi)
Route by Nicaragua is 943 Km (509 Mi) closer
WATER RESOURCES

WATER

NICARAGUA.....BLESSSED WITH THE LARGEST WATER RESOURCES BETWEEN U.S. GREAT LAKES AND GUARANI ACQUIFER OF PARAGUAY BUT WITH THE LOWEST LEVEL OF UTILIZATION

AVAILABILITY: 38,668 CUBIC METERS PER YEAR PER CAPITA (M3/YEAR)
THE WORLD NEEDS A LARGER CANAL
TRIPLE E SHIPS DOMINATE WORLD SEABORNE TRADE

World seaborne trade (Millions of TM)

<table>
<thead>
<tr>
<th>Year</th>
<th>1988</th>
<th>2011</th>
<th>2019</th>
<th>2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>3,585</td>
<td>8,839</td>
<td>10,529</td>
<td>12,572</td>
</tr>
</tbody>
</table>

Global maritime traffic will grow 42.2% between 2011 and 2025

World exports of goods, by value, 2000-2020

From US$ 19.9 trillion to US$35.6 trillion in 2020

Evolution of container ships
- TEU: twenty-foot equivalent units; length x width x depth below water in metres
- Early container ship (1956-): 500 – 800 TEU, 137x17x9m
- Fully Cellular (1970-): 1,000 – 2,500 TEU, 215x20x10m
- Panamax (1980-): 3,000 – 4,400 TEU, 250x32x12.5m
- Panamax Max (1985-): 3,400 – 4,500 TEU, 290x32x12.5m
- Post Panamax (1988-): 4,000 – 5,000 TEU, 285x40x13m
- Post Panamax Plus (2000-): 6,000 – 8,000 TEU, 300x43x14.5m

Transiting the Panama Canal today
- Can transit the Panama Canal after expansion
- Can not transit by Panama Canal even after expansion

By 2030 post-Panamax vessels will represent 30% of all vessels and 60-70% of world trade

Vessels of 10,000 TEUs and over accounted for 48% of the order book as of October 2011. It is evident that large ships are displacing smaller ships in all trade routes due to cost efficiencies of larger ships

Source: HKND-Group.com

Mega container, (2014-)
- 13,500 TEU, 366*49*15.2m

US Army Engineers Corps, 2012

TEU: 20-feet container equivalent unit

Source: Adapted with permission from The Geography of Transport Systems, Jean-Paul Rodrigue
LIMITATIONS OF THE PANAMA CANAL FOR LARGER VESSELS

Current Locks

New Locks

Panama (new):
- Length: 427m
- Width: 55m
- Depth: 18.3m
- Height: 61.3m

Nicaragua:
- Length: 520m
- Width: 750mm
- Depth: 27.6m
- Height: 80m

Las Américas bridge

Maersk EEE

61.3 m
EEE VESSELS REDUCE TRANSPORT COSTS AND CO2 EMISSIONS

400 meters long, 59 meters wide, 73 meters high, 12.6 meters deep

Reduce CO2 emissions by 50% per twenty-foot-equivalent units (TEU), compared to industry average on the Asia-Europe trade.

Consumes approximately 35% less fuel per container than the 13,100 TEU vessels

Emits less grams of CO2/ton km than other forms of transport

UP TO 30% REDUCTION IN COST OF METRIC TONNE SHIPPED

Grams of CO₂ emitted by transporting 1 ton of goods 1 km

3 g

18 g

45 g

560 g
1. MSC «OSCAR» (January 2015)
   - Capacity: 19,224 TEU
   - 395.4 m. in length
   - 59m breadth
   - 16m depth
Property of China’s Bank of Communications

2. CSCL GLOBE (December 2014)
   - Capacity: 19,100 TEU
   - 400 m. in length
   - 58.6 m breadth
   - 15m depth
   - Consumes 20% less energy than a ship of 10,000 TEUs
Property of China Shipping Container Lines

MAERSK LINE (Triple E’s owner) plans to build six ships of 19,000 TEU by 2017
1. Hyundai Heavy Industries, Korea.
2. Samsung Heavy Industries, Korea.
3. Daewoo Shipbuilding & Marine Engineering, Korea.
4. STX Offshore & Shipbuilding, Korea.
5. Jiangsu Rongsheng, China.
8. Jiangsu New YZJ, China.
9. Changxing, China (under construction).
WHO BUILT THE LARGEST SHIP IN THE WORLD?

Maersk EEE was built by Daewoo Shipbuilding in Okpo, South Korea, 2013

Prelude FLNG is the largest ever built first floating liquefied natural gas platform in the world and the ship. The Prelude is being built by Samsung Heavy Industries in Geoje, South Korea, by Royal Dutch Shell.

Hyundai Heavy Industries has begun the construction of the first of five container ships of 19,000 TEUs of China Shipping Container Lines.
## Dimensions and capacities of the Grand Interoceanic Canal of Nicaragua

### Grand Interoceanic Canal of Nicaragua
- **Length:** 275.5km (106.8km on Lake Nicaragua)
- **Width:** 280m
- **Depth:** 30-33m
- **Capacity:** 5,100 ships a year (2050), with 30 hours of transit each boat.
- The Canal will allow the transit of:
  - 25,000 TEU container ships,
  - bulk ships of 400 thousand dwt,
  - Oil tankers of 320 thousand dwt.

### Panama Canal
**Actual:**
- **Length:** 80Km
- **Width:** 91-300m
- **Depth:** 12.8m (Atlantic), 13.7m (Pacific)
- **4,500 TEU vessels, maximum**

**With the ampliation:**
- 13,000 TEU vessels, maximum
- Bulk ships of 200 thousand dwt
- Oil tankers of 120 thousand dwt

The capacity of a Triple-E vessel is 18,800 TEU
Estimating the state of demand for maritime transport in 2050

### Present day
- The gap Supply / demand of ships has been increasing

### In 2050
- Assuming a 2% average growth per year, the growth will be from 150 million today to 450 million TEUs in 2050. With 4% this would become 640 million TEUs.

- Entire fleet will be replaced.

- If a fleet three times larger than the current is assumed, **US $ 600 billion would be needed to acquire biggest new fleet**. The largest ships are constructed in China, South Korea and Japan.

---

Cumulative loss of $ 6 billion in the period 2009-2013 for the 18 companies who have published their results.

Without Maersk Line and CMA CGM, the remaining 16 companies have an accumulated loss of US $ 10.4 billion.

**Strategy for survival: larger, more efficient ships to save the gains.**

---

Fuente: Lars Jenssen, CEO Sealntel Consulting.
THE INTEROCEANIC GRAND CANAL OF NICARAGUA: THE ROUTE FOR EXTERNAL COMMERCE

The Grand Canal will assume **5%** of the world trade transport

**900 million tons per year will transit by the Canal**

- Iron, oil, gas from Venezuela and Brazil, soybean production from South America to Asia
- Oil and gas from the United States and Canada (Keystone XL Pipeline) to Asia
- Asian manufactured goods to USA, South America and Europe and vice versa
- Route of copper, fruit and wine from Chile and Peru to Europe and European manufactured goods to the west coast of South America
- Route from the West Coast USA to Europe and vice versa
CHINA: FROM SELLER TO BUYER

- In the past 30 years, the world was buying from China
- In the next 30 years, the world will be selling to China
- The size of the Chinese economy will reach the United States and 31 years from now will exceed it.
- China will be soon the largest consumer in the World

**Size of economies of China and the United States**

- **United States**
- **China**

**United States Oil and gas exports**

- 2000: US$ 12.01 billion
- 2018: US$ 113.09 billion

**China’s Oil imports**

- 2000: US$ 18.9 billion
- 2018: US$ 225.10 billion (projection)

**China will be the world’s largest economy by 2044**

Port Throughput by Relative Share (Containers)

Source: Gonzalez Iaxe, Freire & Pais (2011)
**Freight Estimated Savings in the main exports to Asia**

Considering that the transport of goods in larger vessels reduce the cost of freight by 30% per ton.

FOB exports from Brazil to Asia (excluding Middle East) January-September 2014. example: 3 main products (million tons. and US $ million)

<table>
<thead>
<tr>
<th>General Total (others included)</th>
<th>Weight (TM.)</th>
<th>US$</th>
<th>Approximate cost of freight</th>
<th>Estimated Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Total</strong></td>
<td>250.94</td>
<td>59,320.65</td>
<td>4,449.05</td>
<td>1,334.71</td>
</tr>
<tr>
<td>Soy</td>
<td>35.60</td>
<td>18,127.05</td>
<td>1,359.53</td>
<td>407.86</td>
</tr>
<tr>
<td>Iron ore</td>
<td>167.72</td>
<td>12,481.26</td>
<td>936.09</td>
<td>280.83</td>
</tr>
<tr>
<td>Oil*</td>
<td>7.21</td>
<td>45,45.65</td>
<td>340.92</td>
<td>102.28</td>
</tr>
</tbody>
</table>

*It will grow with offshore fields

Venezuela fuel exports to Asia. 2012

<table>
<thead>
<tr>
<th>US$ millions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
</tr>
<tr>
<td>Approximate cost of freight</td>
</tr>
<tr>
<td>Estimated Savings</td>
</tr>
</tbody>
</table>

Total exports from Argentina to China. 2012

<table>
<thead>
<tr>
<th>US$ millions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
</tr>
<tr>
<td>Approximate cost of freight</td>
</tr>
<tr>
<td>Estimated Savings</td>
</tr>
</tbody>
</table>

Ministry for Development, Industry and Foreign Trade, Brazil

World Trade Organization (WTO)
50,000 puestos de trabajo en la fase de construcción

Operación: 3,700 trabajadores en 2020
12,700 en 2050

113,000 puestos de trabajo en la zona de libre comercio

Más de 3,000 puestos de trabajo en los centros turísticos

MÁS EL EFECTO MULTIPLICADOR EN EL EMPLEO

• 25 mil trabajadores extranjeros
• 25 mil trabajadores nicaragüenses
NUEVO PUERTO EN EL CARIBE REDUCIRÁ LOS COSTOS DE IMPORTACIÓN Y EXPORTACIÓN EN NICARAGUA

Exportaciones FOB por Puerto Cortés y Limón (Millones de dólares)

<table>
<thead>
<tr>
<th>Año</th>
<th>Puerto Cortés</th>
<th>Puerto Limón</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>212,08</td>
<td>390,86</td>
</tr>
<tr>
<td>2011</td>
<td>224,20</td>
<td>491,39</td>
</tr>
<tr>
<td>2012</td>
<td>148,20</td>
<td>602,28</td>
</tr>
<tr>
<td>2013</td>
<td>136,68</td>
<td>449,80</td>
</tr>
</tbody>
</table>

Importaciones CIF por Puerto Cortés y Limón (Millones de dólares)

<table>
<thead>
<tr>
<th>Año</th>
<th>Puerto Cortés</th>
<th>Puerto Limón</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>77,69</td>
<td>97,388</td>
</tr>
<tr>
<td>2011</td>
<td>77,537</td>
<td>77,91</td>
</tr>
<tr>
<td>2012</td>
<td>81,79</td>
<td>87,68</td>
</tr>
<tr>
<td>2013</td>
<td>89,09</td>
<td>90,09</td>
</tr>
</tbody>
</table>

Fuente: DGA

Ahorro Anual de Costos Logísticos a la Economía Doméstica

<table>
<thead>
<tr>
<th>Conceptos</th>
<th>Cálculo del Ahorro de Costos</th>
<th>% del PIB</th>
<th>US$ millones</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIB de Nicaragua en 2013</td>
<td>11,255.60</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Costos Logísticos sin Puerto Águila</td>
<td>11,255.60</td>
<td>25%</td>
<td>2,813.91</td>
</tr>
<tr>
<td>Costos Logísticos con Puerto Águila</td>
<td>11,255.60</td>
<td>13%</td>
<td>1,463.23</td>
</tr>
<tr>
<td>Ahorro Generado por Puerto Águila</td>
<td>11,255.60</td>
<td>12%</td>
<td>1,350.67</td>
</tr>
</tbody>
</table>

Fuente: Martínez & Piñeiro (2014)
<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 5, 2012</td>
<td>Memorandum of Understanding with HKND</td>
</tr>
<tr>
<td>May 23, 2013</td>
<td>Consultations with the Autonomous Southern Caribbean Regional Council</td>
</tr>
<tr>
<td>June 14, 2013</td>
<td>Law 840 &quot;Special Law for the Development of Infrastructure and Transportation relating to Nicaraguan Canal, Free Trade Zone and associated infrastructure&quot;</td>
</tr>
<tr>
<td>2013-2014</td>
<td>Constitutional Reform</td>
</tr>
<tr>
<td>August 26, 2014</td>
<td>Permission granted for canal studies to HKND by the Territorial Government Rama-Kriol</td>
</tr>
</tbody>
</table>
Law 840 «Special Law for the Development of Nicaraguan Infrastructure and Transportation related to the Canal, Free Trade Zone & Associated Infrastructures»

• Grants an exclusive concession in favor of The Investor and its concessionaries for the Development and Operation of every Sub-Project, according to the MCA for a term of fifty (50) years, renewable for other 50 years.

• HKND assumes all costs and risks of the feasibility

• HKND commits to mobilize at least US$40 billion for the construction.

• The Nicaraguan Canal Commission approves the plans of the subprojects and monitors their execution, emits environmental and construction permits through a one stop shop window and is in charge of environmental protection.
Law 840 grants to HKND Concession to conduct studies, and to promote further concessions for subprojects.

Concession of use for a period of 50 years, renewable for another 50 years.

Nicaragua will start, 1% of shares and shall be increased by 10% its stake in every 10 years. Also receive $100 million in 10 annual payments for the concession.

Commission of the Development of the Grand Canal Project will monitor financial and physical execution of each subproject and will issue all environmental permits and construction permits.

Each sub project should have its feasibility studies and a plan approved by the Commission of the Grand Canal Project.
FEASIBILITY STUDIES

2nd largest governmental construction company of China

Feasibility studies are concluded when

Investors:

- Group of Xuzhou Construction Machinery (XCMG)
- Shipping company
- China Ocean Shipping (Group) Company (COSCO);
  - World leader in shipping
- International Marine Shipping Container of China (CIMC);
  - The world's largest manufacturer of shipping containers
- China National Corporation of Building Materials (CNBM)
  - Major industry group of building materials of China

Other investors when feasibility studies are concluded

INVESTORS:

- HKND
- Private Equity Funds
- Private Investment Banks
- Multilateral Banks
"It is one of the largest infrastructure projects in the world. **The feasibility study alone is set to cost $900 million.** And when complete, the Nicaragua Canal should lower transport costs for shipping oil from Latin America to China."

"Right now, 4,000 people, including staff McKinsey, British environmental consultancy ERC the law firm from USA, Kirkland, and research institutes belonging to the CRC, are working on the feasibility study. Mr. Wang said that HKND could cover with its own funds, the operating cost even before the start of construction, scheduled for late 2014"
Building a Nicaragua Canal seems to make sense. The Canal is projected to have room for the biggest ships, while also saving 800 kilometers on a journey from New York to Los Angeles. We generally support infrastructure improvements. It brings opportunities for transport, and therefore trade. When we built container ships 20 years ago were scaled according to the Panama Canal, but, ships today are larger than 4,500 TEU that could fit into the larger ships then. Even after the Panama Canal expansion, larger ships can not fit there, "Keith Svendsen, Head of Operations at Maersk Line daily."
ONUDI is going to provide technical advice to the Commission of the Grand Canal, in environmental issues, resource efficiency, quality and certification, employment generation and monitoring and evaluation of projects.
CEMEX CONSTRUCTS A NEW PLANT

Construction of a new cement grinding plant in Nicaragua

- Announced in Monterrey on May 5, 2014
- Cost of US $ 55 million.

• First phase:
  - First half of 2015
  - US $ 30 million in the installation of a cement factory in Ciudad Sandino
  - Production capacity of 220,000 tons.

• Second phase
  - End of 2017
  - The installation includes a second grinding mill
  - Capacity of 220,000 tons.

Positioning for Central American development pole of the century in Nicaragua.
PUBLIC OPINION ON THE CANAL

Monitoring System of Public Opinion (SISMO XLII)

M&R Consultores
Diciembre 2014
WHAT ARE THE CHALLENGES AND OPPORTUNITIES FOR NICARAGUA?
All construction projects have an environmental and social cost.

The route has been chosen, engineering choices have been made and the necessary adjustments that minimize environmental and social impact have been decided.

Mitigation and compensation measures, improving the environment to cause a net positive environmental impact

THE GOAL IS A POSITIVE NET ENVIRONMENTAL IMPACT, WHETHER IN THE AREA OF CANAL OR AT THE NATIONAL LEVEL. WITH THE RESOURCES FOR MASSIVE REFORESTATION, WHICH CAN INCREASE THE RESILIENCE OF THE ECOSYSTEMS.
Commitment to increasing the ecosystems resilience

A road linking the port with Tola. A rock wall will be designed to allow a good mix of fresh and salt water for the mangroves.

Most of the Río Brito and healthy mangroves NOT be affected. Brito’s Mangroves, southward of Canal, remain intact.

West Entrance into Lake (avoid populated areas). Canal alignment and Airport location will change to avoid impacting Rivas.

Small-scale dredging of the lake by suction (hydraulic). THERE WILL BE NO BLASTING IN THE LAKE The sand and hard materials will be arranged at along the south side of Route Canal.
Commitment to increasing the ecosystems resilience

The alignment has been changed to the output from the Lake to the east of the Canal, in order to avoid environmentally sensitive areas.

Protection of Indio Maíz. The Canal acts as a barrier to the intrusions of people in the area.

The impact on palm forest in the Caribbean will be minimized.

Puerto Águila will be filled with dredged to minimize the impact on Indigenous Peoples. Canal Route avoids the impact on Booby Cay.
Globally, the construction of the Grand Canal will reduce 32.5 million tons in annual CO2 emissions made by maritime trade worldwide.

The avoided emissions are greater than the emissions of the countries of Central America and comparable with those produced by countries like Switzerland.
NET POSITIVE ENVIRONMENTAL IMPACT: On the site of the Canal

- Prevent further penetration into Reserves Indian Corn and Punta Gorda
- Rehabilitation of degraded areas in Indio Maiz Reservations and Punta Gorda and improve watershed management
- Provide compensation and funding to improve RAMSAR site of San Miguelito.
- Provide alternatives and better living conditions

Reverse deforestation trends
THE CHALLENGE OF AN ONGOING DEFORESTATION

- 25% of the total land area is forested.
- Current rate of deforestation is 70 thousand hectares annually.
- The estimated reforestation of 20 thousand hectares per year.

It is necessary to contain the advance of the agricultural frontier.

THE ROUTE OF GRAND INTEROCEANIC CANAL, RUNS THROUGH AREAS WITH DEGRADED SOILS BY THE AGRICULTURE FRONTIER
The Canal is a water project whose viability depends on water and this on massive reforestation and watershed management.

NET POSITIVE ENVIRONMENTAL IMPACT: NATIONAL LEVEL

Stop present and future sedimentation of Lake Nicaragua

Integrated watershed management (massive reforestation, reinjection of water, biodiversity protection)

Strengthen protected areas — 17% territory

ECLAC estimate that in 2011 Nicaragua had adaptation needs over US$ 1,900 Millions

• Protection of local populations from flood or drought.
• Environmental monitoring, climate and integrated health.
OPPORTUNITIES

• Opportunities for young Nicaraguans and Central Americans for professional, technical, and skilled formal sector employment in news fields, including:
  – Example 1: Maritime industry
  – Example 2: Regional and world multimodal logistical center
WHAT ARE THE EMPLOYMENT AND BUSINESS OPPORTUNITIES?
OPPORTUNITIES

• Opportunities for young Nicaraguans and Central Americans for professional, technical, and skilled formal sector employment in news fields, including:
  – Example 1: Maritime industry
  – Example 2: Regional and world multimodal logistical center
A Free Trade Zone on the Pacific coast (Rivas)

Location: 20 km from the Pan American Highway and Rivas in the east, 120 km from Managua in the north, 8 km from the tourist complex planned in the south, and 17 km from San Juan del Sur, and 16 km from the new airport near Rivas.

4 functional areas: 29.2 km², 113 thousand jobs

- Export Processing Zone: 7.87 km².
  - 58 thousand jobs.
  - US$2,000 million in 2030

- Free Trade Zone: 4.34 km².
  - 30 thousand commercial jobs.
  - US$25,000 million of import and export trade in 2030

- Urban Areas: 15.08 km².
  - 140 thousand residents

- Financial Offices Area: 0.82 km².
  - Will focus on providing financial and transportation services.
  - 25 thousand jobs
Touristic Complexes

The complex will be:

- Superior Field Service lodging during project implementation
- Tourism destination for Nicaraguans
- 1st world level themed coastal resort in Nicaragua

Tourist Complex
- 6.94km2
- 377,600 m² of built area
- 761 villages
- Hotel with 1,400 rooms, and from 1.800 to 2.200 beds
- 3,000 jobs
Power plants, steel and cement, etc.

Sub projects needed to ensure the supply of materials and energy during implementation and operation of the project

It is currently undergoing the feasibility studies
## Requirement of building materials

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>AÑO 1</th>
<th>AÑO 2</th>
<th>AÑO 3</th>
<th>AÑO 4</th>
<th>AÑO 5</th>
<th>AÑO 6</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement (10,000 ton)</td>
<td>4.3</td>
<td>25.5</td>
<td>178.2</td>
<td>174.4</td>
<td>112.3</td>
<td>1.2</td>
<td>495.9</td>
</tr>
<tr>
<td>Explosives (10,000 ton)</td>
<td>4.2</td>
<td>25.5</td>
<td>35.8</td>
<td>36.2</td>
<td>34.0</td>
<td>2.5</td>
<td>138.2</td>
</tr>
<tr>
<td>Steal and corrugated (10,000 ton)</td>
<td>10.4</td>
<td>6.4</td>
<td>22.2</td>
<td>27.0</td>
<td>27.6</td>
<td>1.9</td>
<td>95.5</td>
</tr>
<tr>
<td>Coal Ash</td>
<td>0.2</td>
<td>1.5</td>
<td>30.7</td>
<td>30.2</td>
<td>18.0</td>
<td>0.1</td>
<td>80.8</td>
</tr>
<tr>
<td>Lubricants</td>
<td>10.4</td>
<td>6.4</td>
<td>22.2</td>
<td>27.0</td>
<td>27.6</td>
<td>1.9</td>
<td>95.4</td>
</tr>
</tbody>
</table>
GREATER OPPORTUNITIES FOR INTEGRATION

- Construction of a Multimodal Logistics Centre for Regional and Global Trade
- Reduction of time and costs of distribution (compared to Miami and Colon Free Zone)

- Improvement and modernization of ports
- Reduction of costs of maritime transport for TM (20-30%) due to EEE ships

Increased trade flows of Central America

Great need for skilled and unskilled labor

- Professionals
- Skilled and unskilled workers
- Middle and senior technicians
- Specialists

Busiest Central American Ports

Great boost to the construction

- Opportunities for companies in construction and construction equipment and materials
- Opportunities for land and sea transport companies

GREAT MULTIPLIER EFFECT IN CENTRAL AMERICA
Coordination Commission of Education and Technical Training
Government - Private Sector

THE CHALLENGE OF TECHNICAL EDUCATION AND TRAINING FOR THE NEW ECONOMY

Public Universities

Private Universities

Public technical institutes and centers

Ministry of Education

Presidency

CREATE THE NATIONAL CAPACITIES FOR THE TRANSFORMATION OF NICARAGUA

INNOVATION AND ENTREPRENEURSHIP

MITIGATION AND ADAPTATION TO CLIMATE CHANGE

TRANSFORMATION OF CURRENT AGRICULTURAL ECONOMY

CONSTRUCTION AND OPERATION OF THE GRAND CANAL AND OTHER PROJECTS

PUBLIC ADMINISTRATION ALIGNED TO THE DEVELOPMENT

SOCIAL PARTICIPATION

Professional Profiles
Identification of needs
Adjustments to the education system
The multiplier effect of the project: The greatest positive economic, social and environmental impact on the country

- Great formal employment growth
- Canal construction and complementary infrastructure
- Operation and Administration of the World and Regional Logistics Center
- Increased investment, trade growth, accelerating growth
- Increased income of Central Government

Multiplier effect of the Canal from now to 2020
The Grand Canal: historic opportunity for Nicaragua

The Grand Canal will generate the resources to build the desired development to achieve a prosperous and fairer Nicaragua.

Increasing resilience of ecosystems
- Climate change adaptation
- Massive reforestation
- Recovery of soil and water sources
- Habitat and biodiversity restoration

Overcoming of Extreme Poverty
- Formal Employment
- Growth of resources for social programs

Construction of economic independence
- Combining economic independence with political independence already achieved by the FSLN

Increasing resilience of ecosystems
- Combining economic independence with political independence already achieved by the FSLN

Overcoming of Extreme Poverty
- Formal Employment
- Growth of resources for social programs
Dr. Paul Oquist Kelley
paul.oquist@sppn.gob.ni

- Executive Secretary of the Commission of the Grand Interoceanic Canal of Nicaragua
- Minister, Private Secretary for National Policies of the Presidency of the Republic