



THIRTY YEARS OF GROWTH AND DEVELOPMENT.

THE TRANSFORMATION OF

# Lake Asphalt

of Trinidad and Tobago (1978) Limited



## HISTORY OF THE PITCH LAKE

The Pitch Lake, located in La Brea, Trinidad is a natural wonder of the world. It is a solidified hydrocarbon deposit approximately 113 acres in size. It was formed through the interaction of oil and gas subject to tremendous pressures over eons of time. Its composition is Bitumen 39.3%; Mineral 28.4%; Water & Gas 29%; and Water of Hydration 3.3%. The product from the Lake referred to as TLA, in its natural state, is a dull black in colour. When refined however, the colour changes to brilliant black.

In his book *The Commercial Development of Trinidad Lake Asphalt*, Mr. Winston Wilshire wrote "TLA was for Trinidad the most widely traded product to ever originate locally and from relatively early times... In an important sense, TLA was the earliest principal engine for integrating first the Trinidad economy and the Trinidad and Tobago economy into the world economy in its broadest geographical dimensions... in fact TLA over the past two centuries... has contributed to high quality land transportation globally."



1595

1978



2008



**Lake Asphalt of Trinidad and Tobago (1978) Limited**

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## Minister's Address.



**The Hon. Conrad Enill**  
Minister of Energy  
& Energy Industries

The Government of the Republic of Trinidad and Tobago, by policy, demands performance and the production of world class products and services by its state enterprises. State Enterprises are expected to contribute towards the creation of a competitive business environment so that our organisation can be globally competitive.

The competitive business priority is built on a vision of an economy diversified through investments in agriculture, energy, financial services, industry and entrepreneurship, tourism and finance – quality elements that underpin the nation's ability to generate revenues that will drive the transformation.

Lake Asphalt as a State enterprise has responded by developing a strategy to become a market-focused and performance-driven Company, for the benefit of the people of Trinidad and Tobago. Lake Asphalt's transformation process

is strategically linked to the five Development Priorities outlined in Government's Vision 2020 Development Plan :

- Developing Innovative People;
- Nurturing a Caring Society;
- Governing Effectively;
- Enabling Competitive Businesses;
- Investing in Sound Infrastructure and Environment

Lake Asphalt's investment in Human Capital is reflected in the Development Priority – Developing Innovative People. – The Company is cognisant of the fact that its transformation resting heavily on its human capital, and in this regard has embarked on an extensive and comprehensive training programme to improve the skills, competency and efficiency of its employees.

Lake Asphalt's growth in Global Markets and Business is reflected in the Development Priority – Enabling Competitive Business. – This priority supports improvements in an organisation's work processes to foster increased production and capacity, research expansion and development initiatives. It is through research and development that Lake Asphalt will ensure the attainment of a sustained competitive advantage.

Lake Asphalt's improvement in its physical infrastructure is critical to the Development Priority – Investing in Sound Infrastructure & Environment. – These improvements provided the basis for the upgrade of buildings and plant infrastructure thereby creating mechanisms to improve operating efficiency.

These initiatives when successfully completed will add significant value to the citizens of Trinidad and Tobago by ensuring that we move one step closer to developing all our people and creating a first world nation.

On behalf of the Ministry of Energy & Energy Industries, I wish to congratulate Lake Asphalt on the occasion of its 30th Anniversary and wish the Company continued success.

## Deputy Chairman's Remarks.



**Anthony Richardson**  
Deputy Chairman

As we celebrate thirty (30) years as a state enterprise, it is important that we remember the circumstances that brought us to that point and indeed the journey thereafter as an entity owned by the Government of the Republic of Trinidad and Tobago.

Out of receivership in 1978, Lake Asphalt of Trinidad and Tobago (1978) Ltd was formed. Our first challenge was that many of the Trinidad Lake Asphalt (TLA) markets serviced prior to nationalization were no longer available to us. Lake Asphalt now had to rebuild its business, operating through Distributors in the United States, United Kingdom and Germany.

Over the years our awareness and understanding of the international markets for asphalt and our innovation in research and development have allowed us to maintain the TLA reputation and position in the asphalt industry world-wide.

As we evolve, these marketing arrangements are likely to change to allow the Company to become a more active player in the international arena. Indeed, our product offerings will also have to be configured to meet specific market requirements. The most important of those actions to date was the development of Pelletised Asphalt, with the first plant being commissioned in September 2007.

In 2004, we embarked on a strategic path to facilitate the transformation of the Organisation and one must recognize that while we have had some successes in these efforts, our workers, Trade Unions, Management and other stakeholders must recognize that the long term viability of the Company may require fundamental changes to the way it operates so that we can compete effectively in the international markets in which we operate. Prior to 1978, TLA could be found in every continent of the world. Today, while that has not changed, we are however selling greater volumes into Asia than ever before. Our products are marketed regionally and in the Americas, Asia, Europe and Africa.

Our internal capability for the improvement of our technology is formidable and we have maintained links internationally with reputable asphalt institutions. Our products have therefore been accepted and certified in many countries worldwide.

As the transformation efforts continue in terms of infrastructural development, market expansion and people development, I wish to express my thanks and appreciation to my fellow Directors for the contribution that they have made in the last four and one half years. I also wish to recognize the former Chairmen of Lake Asphalt including Mr. Lawford Dupres, Mr. Winston Mootoo and Mr. Ian Rajack for the sterling contributions they have made during their tenure. I also wish to express my thanks to the local General Managers of the Company – Mr. Ainsley Nichols, Mr. Gerard Richards, Mr. Ronnie Jones and the current Chief Executive Officer Mr. Wayne Wood for the contributions that they have all made to the development of this Company. Special thanks to our shareholders, other stakeholders and most importantly, to the past and present employees of Lake Asphalt.

## The Lake Asphalt Board of Directors.



**Merlin Boyce**



**Gene Portner**



**Owen Hinds**



**Raval Singh**

## Chief Executive Officer's Address.



**Wayne Wood**  
Chief Executive Officer

Lake Asphalt of Trinidad and Tobago (1978) Limited (Lake Asphalt) is a company in transformation. After years of mixed financial fortunes, the company is now on a path towards financial viability. As of September 30, 2007, the company recorded the highest turnover and the highest operating profit in its history of TT\$151.5m and TT\$25.9m respectively (2006: Turnover – TT\$109.5m and Profit – TT\$12.4m).

The Company has to date, achieved the financial targets outlined in Strategic Plan 2006-2008.

The transformation of the organisation began in earnest in 2004, when the newly appointed Board of Directors working together with Management developed the Strategic Plan 2006-2008 entitled, "Transforming the Enterprise". The Strategic Plan focuses on the following areas:

- Creating an incredible commercial enterprise, a financially strong Company, generating attractive returns for its shareholders.
- Creating a successful progressive enterprise with a highly motivated workforce, operating in a secure environment, sensitive to the health and well being of employees, fostering creativity and innovation through continuous training and development coupled with an attractive reward system and employee participation through profit sharing and equity ownership.

- Becoming a global business meeting international standards, through joint ventures and strategic alliances thereby transforming the company into a market focused and performance driven organisation, developing new market opportunities for existing as well as new high value-added products as derivatives and blends of the basic raw material.

- The re organisation of work processes, linking rewards to a performance monitoring system by introducing technology and performance measures conforming to local and international standards to increase and monitor productivity and efficiency in the production and engineering processes.

- Supporting continuous research and innovation through the maintenance of links with international asphalt organisations to assist in the evaluation of TLA performance in specific markets. It is through this type of work that we are able to convince consultants and contractors of the benefits of using TLA.

- Transforming the communicative processes by which Lake Asphalt engages its internal and external communities thereby building its brand and improving its corporate image, commitment and shareholder relationships.

Although the transformation has not been completed, Lake Asphalt has made considerable strides. To ensure the long term viability of the company, the hard decisions however, are yet to be taken. In the interim, the organisation continues to focus on the following:

**Human Resource Development.** Cognisant of the fact that our success in transforming the Company will rest heavily on our human capital, we have embarked on extensive and comprehensive training

programmes to improve the skills, competency, and efficiency of our employees. In addition, we are transitioning to a performance-based system of compensation to facilitate the achievement of our objectives.

**Increased Efficiency.** Through improvements in our work processes we are enabling a competitive business. During 2007 we shipped a record volume of 32,000 tonnes of our flagship product – Trinidad Lake Asphalt (TLA) to China. This achievement was due to changes in our work practices, which results in an increase in productivity.

**Physical Infrastructure Improvements.** The Company has been in existence for more than 100 years. The aging infrastructure required an extensive upgrade. The upgrade began with the commissioning of the Pelletisation Plant, which represented an investment of approximately \$25M. This Plant was commissioned in September 2007 and to date pellets have been shipped to Canada, India, Brazil, USA and Germany. Since then, improvement works have continued and work is currently being undertaken at our Administration Buildings, Warehouse facilities and Laboratory. In addition, the Company embarked on a major plant turnaround exercise earlier this year

**Business Growth.** As highlighted in our Strategic Plan 2006-2008, we have sought to expand our market base to improve our sales volumes. Our sortie into China some years ago has today resulted in increased sales volumes through the economic and infrastructural developments that are taking place in that country and the upcoming Beijing Olympics.

The Company is mindful that it needs to expand markets into other growth areas such as India, Africa and South America.



### Chief Executive Officer's Address. (cont'd)

**Continuous Research and Development.** To respond to market demands, Lake Asphalt focuses heavily on improving and expanding its research and development capability. It is through this research and development that the Company will ensure the attainment of a sustained competitive advantage. Although Lake Asphalt was the first supplier of bulk Bitumen and first supplier of a modifier for asphalt, the Company has several new products under development. The next area of development will be the customisation of asphalt to meet niche market demands.

Quality Road Infrastructure Development - Lake Asphalt has partnered with international organisations to improve road-work quality through training and development. TLA is a quality product in the international market and recognised world-wide as a premium product.

### The Lake Asphalt Management Team.



**Nigel Minors**  
Team Leader Int.  
Business Unit



**Frank Dillon**  
Finance  
Manager



**Sati Jagmohan**  
Manager Corporate Services  
Corporate Secretary



**Kenny Pope-Cupid**  
Engineering  
Superintendent

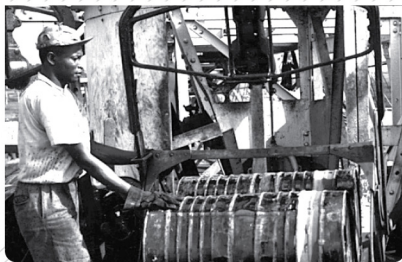


**Samuel Morrisson**  
Production  
Superintendent



**Deonarine Sarabjit**  
Head Research  
and Technical Services

### TLA History.



Of the many natural deposits of asphalt found in various parts of the world, the most famous and the most commercially developed deposit is the Pitch Lake in Trinidad. This deposit which was known by the Amerindians was discovered in 1498 by Christopher Columbus who used the natural waterproofing material to caulk his storm wreck seams.

In March 1595, Sir Walter Raleigh visited the Pitch Lake and describe the pitch as "most excellent good and melteth not with the sunne as the pitch of Norway...".

From as early as 1790, pitch was exported to Spain and the Spaniards were the first to produce what became known as epuré or dried asphalt. However, it was the French who were credited with the industrial use of asphalt. By 1872, stills had been set up in La Brea for the manufacture of dried asphalt. These stills are still used today.

TLA was used as a paving material from as early as 1815 when it was used to pave the streets of Port of Spain. In 1870, the very first asphalt pavement was laid in front of the City Hall in Newark, New Jersey. Between 1871 and 1874, Pennsylvania Avenue in Washington D.C. was paved with TLA.

The intense commercialisation of the product did not occur until 1888 when the Trinidad Lake Asphalt Company was founded by a group of American and British businessmen. From that time on, the use of TLA increased rapidly, becoming the road surfacing material of choice.

Between 1888 and 1978, industrialization, the development of the automobile industry, the World wars, the crash of the American Stock market and growth in prominence of the petroleum industry impacted on the demand for asphalt. During this time, ownership of the company evolved and in 1949 the British Prevites took full control of the TLA operations.

Amidst the February Revolution or the Black Power Movement, the movement of shares in the Trinidad Lake Asphalt Company came into local hands and a Board of Directors was reconstituted. Mr. Ainsley Nichols - a local resident was appointed Director and designated General Manager replacing Andy Johnson - a British representative.

In 1977, the Company's bankers - Barclays Bank discontinued the Company's credit line thinking that TLA was no longer a viable business. Consequently, the Company went into receivership and was subsequently acquired by the Government. In 1978, Lake Asphalt of Trinidad and Tobago was born and became a subsidiary of TRINTOC. In 2002, Lake Asphalt became an independently vested State enterprise



### TLA Uses.

TLA was traditionally used for the construction of pavements. Within the cities of Helsinki, Berlin, Vienna and Munich, and throughout most of Western Europe, TLA-modified asphalts have been used on inner city and country roads. The TLA mixes on the Autobahns employing Gussasphalt and Stone Mastic Asphalt have resulted in substantial savings on annual maintenance since the product exhibits higher resistance to deformation under extreme climatic conditions and low thermal sensitivity.



Ring Road to Beijing Int. Airport.

Airports worldwide such as Kai Tak Airport in Hong Kong, Kastrup Airport in Denmark, JFK Airport in New York and the Burbank Airport in California have incorporated TLA-modified asphalt in the runway, taxiway and apron areas. Currently, the Beijing airport and the Ring Roads leading to the Olympic Village have all been paved in TLA in preparation for the 2008 Olympic Games.

Numerous racetracks such as the Nurburgring Grand-Prix racetrack in Germany and the Mercedes and BMW test tracks have used TLA-modified asphalt for years. The New Hampshire International Speedway, in London, NH partially resurfaced its track with TLA-modified asphalt.

The Port Authority of New York and New Jersey has used TLA on throughways, taxiways, bridge decks, freeways approach ramps, tunnels, bus terminals, and other areas where heavy loads in large

volume are experienced. Some of these include the George Washington Bridge, the Lincoln Tunnel, JFK international Airport, La Guardia Airport, and Newark Airport, interstates 81 and 495 and most recently, Throgs Neck Bridge. All of these facilities incur high traffic volumes and heavy loading for sustained periods of time as well as extreme climatic conditions of the east coast.

Japanese researchers have reported positive results on TLA-modified asphalt used on the Mount Tateyama and Nakayama bridges as well as the Honshu Shikoku Bridge, one of the largest single-span bridges in the world. The asphalt decks have experienced improvements in the dynamic stability at elevated temperatures, particularly urban traffic.

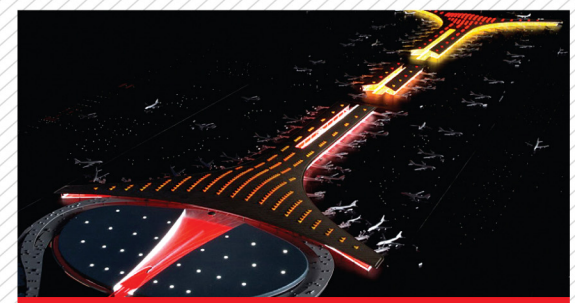
These are just a few of the projects from the many countries throughout the world that use Trinidad Lake Asphalt.

#### Processing of TLA

In the earliest days, the asphalt was removed by hand with the use of tools to loosen the material. Today, the material is extracted using light tractor machinery. Once mined, the asphalt is loaded into buckets, pulled along a trestle and dumped into stills for refining.

#### Uses And Applications of TLA

1. As a modifier for refinery bitumen for paving mixes for runways, taxiways, tunnels and bridges.
2. For lagging of pipelines and cables
3. For coating bridge decks and waterproofing steel structures
4. In building construction for roofing and flooring.
5. For filling expansion joints
6. Battery surfacing and filling
7. Automotive uses (Underbody Coating)



Beijing International Airport, People's Republic of China.



Honshu Shikoku Bridge, Japan.



## International Business Development.

The Strategic Plan of Lake Asphalt is premised on the establishment of a global business which meets international standards through joint ventures and strategic alliances. This involves developing new market opportunities for existing, as well as new value market products as derivatives and blends of the basic raw material.

Prior to 1995, Lake Asphalt's major markets had been Germany and Japan. Those countries were serviced through an exclusive distributor network. In Germany, the distributor relationship allowed the German distributor to add value by integrating our product with other products. While over the years, this structure of trade has been beneficial to Lake Asphalt, the time has come to revisit these arrangements. We have moved to reduce that market to seven territories and will soon come together in a strategic alliance for marketing TLA products in some 45 other countries.

Through our distributor in the United Kingdom, TLA has been sold into the copper minds of Chile, the massive asphalt roofing industry of South Africa and New Zealand and specified for bridge deck works in Japan and Hong Kong. While we have continued to service these markets we have developed new product combinations that will meet specific application needs. In the United States, we have gone back to basic principle and have solicited Rutgers University and the National Centre for Asphalt Technology to update long standing research data on TLA. As the industry operates in a performance graded system, TLA will be ideally suited to meet the performance grade standards that have been set within the industry.

These markets of the Northern Hemisphere have been the traditional markets of Lake Asphalt. However, in accordance with our strategic objectives, efforts are now focused on developing the markets within the Southern Hemisphere to improve revenue stability.



China today is the largest market with some 34,000 tonnes per annum being sold. From the streets of Beijing for the Summer Olympic to the Guangdong provinces for Asian Games in 2010, TLA is the product of choice.

Even as we achieve success in China, we have sought to reopen markets in India, Africa and Brazil. Today we have shipped pelletised TLA commonly referred to as pTLA to Germany, India, Brazil and TLA Cold Mix to Nigeria, India and Brazil. TLA was the first bulk bitumen to the world...the first asphalt modifier to the world...the first to pelletize...and now the first provider of customise asphalt mixes for niche market.

Even as we make strides within the international market, we also have a local and regional market focus. We provide a TLA blend to the local market that has been specified for use on the highways in Trinidad and Tobago. In addition, we have leveraged our international contacts in the industry to provide training programmes that assist the industry's long term development while providing technical support to stakeholders and local contractors.

Regionally, airports in Grenada, Guyana, St Lucia, Barbados, and Jamaica all have been paved with TLA. In addition, we provide bitumen and bitumen emulsion products in the region for road and pavement construction.

There has been no continent around the world in which TLA has not been used. Today Lake Asphalt markets the world famous Trinidad Lake Asphalt (TLA) Pelletised TLA (pTLA), five types of bitumen emulsions, bitumen and the Lasco Range of Products

## Research and Development.

During 1978 to present the company experienced mixed fortunes. In 1995 the company began the sale of Bitumen to local and regional markets as a means of increasing its revenue and strengthening its focus on providing materials for the road building industry.

In 1998 we introduced Bitumen Emulsion as a more environmentally friendly product prime coating. It was there that the thrust for new product technology and long term viability begun.

Over the years, various mixes have been tested, but it was not until 1994 with the breakthrough with pelletised technology that the development of pTLA came into being. This technology allows us to add a variety of products to the pellets, and at the same time use the pelletised technology for changing the way asphalt products are delivered to the marketplace.

We have made significant advancements in our research work, much of which has resulted in enhanced product development and we are moving to the introduction of new products on the market during the period 2009-2016. We have enlisted other product developers in Brazil and the Netherlands to utilise products with a TLA base. Some of the products are for the road industry while others can be utilised in other industries such as roofing.

The Asphalt Laboratory at Lake Asphalt is soon to be ISO Certified and will be the first Certified Asphalt Laboratory in Trinidad and Tobago and indeed the Caribbean.

### Other points to be highlighted are:

1. To achieve long-term viability, research and development initiatives are of extreme importance Today Lake Asphalt Research and Technical Services Unit participates in technical asphalt meetings such as the

Transportation Research Board, Peterson Conference and we are represented on the American Society for Testing and Materials (ASTM).

2. TLA has more than 21 patents and a number of products in development.
3. Today, Lake Asphalt works with TRL in the United Kingdom, the National Centre for Asphalt Technology (NCAT), Rutgers University and other universities in the United States to ensure continuous research support of our developmental efforts within TLA.
4. Indeed through innovation and new technologies the cycle of new product development at Lake Asphalt was shortened.

Today, we have more than seven products in development and two will soon be brought to commercial stage, which will revolutionised the asphalt industry in Trinidad and Tobago and surely the world.

## Human Capital.



Lake Asphalt's Strategic Plan 2006-2008 entitled, "Transforming the Enterprise" recognises that critical to the successful transformation of the company is the human capital.

The employees of Lake Asphalt are the company's most valuable resource. Over the past two (2) years the Company has made great strides in improving the wages, salaries and benefits offered to workers. Significant efforts have also been made in upgrading the skills of the workers to equip them to meet the demands of an organisation that is seeking to reposition itself as a leader in a globalised environment.

**We wish to take this opportunity to thank all our employees past and present for their support over the years and hope that they will continue to support the Company as it grows from strength to strength.**

## The Future.

**Lake Asphalt will revolutionise the asphalt industry. We have been a leader in the world in the asphalt industry from time immemorial. Our present research and development thrust will ensure that we maintain that leadership position. Research and product development however, must be coupled with other critical items. Some of these include:**

1. Bringing new products to markets in a shorter time frame and introducing various combinations of those products for example; combinations of TLA and fibre, polymer, rubber all in pellet forms. We are researching the pelletisation of all products thereby reducing the cost of heating and transportation in the industry.
2. We will leverage our technology and capability to commercialise other asphalt reserves of the world. With the high cost of oil, the quality and quantity of bitumen that will be available will decline. Consequently, the area of development will be in the natural asphalt arena where Lake Asphalt has knowledge, skill and capability.
3. While we maintain some distributor arrangements, some of these arrangements will be transitioned to other arrangements to give us a greater presence and manoeuvrability in the industry particularly in the international arena.
4. While we have dealt with the down stream development from the pelletisation technology we must shift our attention to the upstream - from the lake to plant process to improve efficiency and technology. This will also result in a reorganisation of our work processes to improve productivity.
5. The markets of India, Africa and Brazil will need to be further developed as we continue our efforts in our current major markets of Germany, China and the United States.

## In Closing.

The continued growth and development of Lake Asphalt is premised on the support of all our stakeholders. **THE FUTURE LOOKS EXTREMELY BRIGHT AND PROMISING.**

