

Federal Republic of
Nigeria
Crystal Industrial
Development (CID)
Complex



Enviro-Pac / The Saunders Group

#### Content

- Vision
- Concept for the Vision
- Project Financing & Community Benefits
- Industrialization & Primary Industries
- Crystal Industrial Development Industrial Projects
- Crystal Industrial Development Commercial & Infrastructure Projects
- Crystal Industrial Development Bechtel Experience

### VISION

#### Crystal Industrial Development

(Christ Restructuring Your Social Tolerance and Love)
Contents

As a result of the growing interest in major industrial facilities in Africa and Nigeria, Crystal Industrial Development, Ltd., structured by Enviro-Pac Group AND The Saunders International Group, has developed a concept for an integrated industrial complex in the coastal area of the of Nigeria.

We intend no interference with ongoing discussions, present or future plans or studies for Nigerian Industrial projects. Rather, we seek to assist in this activity through a collaborative effort by and among the groups listed above with the direct consultancy of Bechtel retired engineer Mr. Aage Holm, the author, planner and development engineer for the Jubil Petro-Chemical complex in Saudi Arabia and The Petro-Chemical complex in Tianjin China.

We intend to raise capital through The Saunders International Group/The White Lotus Foundation and support community benefit programs and to reinvest a major portion of those funds into the Crystal Industrial Development in order to accelerate the appropriate industry build-outs to support the social and economic needs of Nigeria.



#### The Vision

By the coming year and beyond, Crystal Industrial Development cities, communities and developments will be the sites of primary industries, chiefly agriculture, petrochemical, upgraded metal production activities and a host of secondary and support facilities, all concentrated within the Northern, Western, Southern and Eastern portions of Nigeria all within a twelve—square—kilometer industrial area in each district.

The abundant petroleum resources (mainly the current flared gases) of the region will serve as both fuel and feedstock in the manufacturing of numerous products for use within the continent of Africa and for export abroad.



#### Nigeria President Muhammadu Buhari

Grand Commander of the Order of the Niger, GCFR, Grand Commander of The Order of The Federal Republic nd President, Commander-in-Chief of the Federal Republic of Nigeria.

#### INAUGURATION

Within the Millennium year **2018/19** President Muhammadu Buhari, GCFR, GCON will inaugurate the Crystal Industrial Development program, to be initiated in the Delta Province of the Federal Republic of Nigeria.

The President and Commander-in-Chief's inauguration will remove any milestones and culminate into a dream which will be so vivid in the minds of Nigerians and the rest of the world that Nigeria will become one of the greatest industrialized nations on the African continent with the greatest utilization of its natural resources.

Crystal Industrial Development will be a major cornerstone of this continent's development and will demonstrate to nations throughout the world that their greatest asset is the true gifts from God and that is the people whom love one another.

Crystal industrial development and cities thus represents Nigeria's bold commitment to improve its economic strength and quality of life of its people and the world.





#### Ministries



MRS. KEMI ADEOSUN HONOURABLE MINISTER OF FINANCE FEDERAL REPUBLIC OF NIGERIA



MS. PEPPLE AMMA INVINGIALA
HONORABLE MINISTER OF HOUSING & URBAN DEVELOPMENT
FEDERAL REPUBLIC OF NIGERIA

#### CONCEPT FOR THE VISION



Federal Republic of Nigeria Crystal Industrial Development Concept





#### THE CONCEPT (cont.)

This is the story of Crystal Industrial Development and City - how it was conceived, what its master plan prescribes and how it is to become a reality. Within only a few months after the start of construction, a large portion of the project infrastructure become usable. Subsequently, the first factories can be up and running within the three to four (3-4) years with cities' population serving as the needed labor force.

Crystal Industrial Development project has began with the **Faith in God's Promise and recognition of the inevitable.** 

Nigeria and Africa in particular, possesses the world's most abundant resources, consisting of its people, agriculture, minerals and petroleum products, now have an open door to benefit the continent, its people as well as the rest of the world.

Recognizing this, God has poised Nigeria, through all its past turmoil, to shine as the corner stone it was meant to be in its historical responsibility to husband its resources, while developing a diversified industrial base to convert them into high value manufactured processed products and enjoin the community it serves as an integral part of the profits and process.





#### THE CONCEPT (cont.)

Crystal Industrial Development intends develop a class of qualified professionals and technical personnel trained in a wide range of technical, vocational and human skills as required in an industrial society. The industrialization strategy aims at allocating basic industries throughout the country of Nigeria and thus the continent. The widely separated sites which will make up the Crystal project - from the Bayelsa States, Imo States, Delta States, and Opuama to the Gulf of Guinea - are ideally suited to not only to service the continent but the world as a whole.

Nigeria is attractive because of its excellent geographical location to Europe, America and the rest of the world's markets.

Crystal Industrial Development is a natural choice for the large agricultural, mineral mining and processing and a petrochemical based industrial complex for several reasons:

The areas of Northern, Western, Eastern and Southern Nigeria have an abundant and qualified labor force and a readily available and relatively inexpensive source of fuel and raw materials. Portions of Nigeria lies on the coast with access to an unlimited supply of seawater needed for industrial cooling purposes. Deep, navigable waters in the Gulf of Guinea makes this location an excellent choice for a large port complex needed for ocean going vessels.

Finally, the Crystal Industrial Development is adjacent to large undeveloped areas, and yet not far from the cities of Lagos, Port Harcourt, and Bayelsa States, Delta States, Imo States and Opuama only one hour flight to the capital city of Abuja.

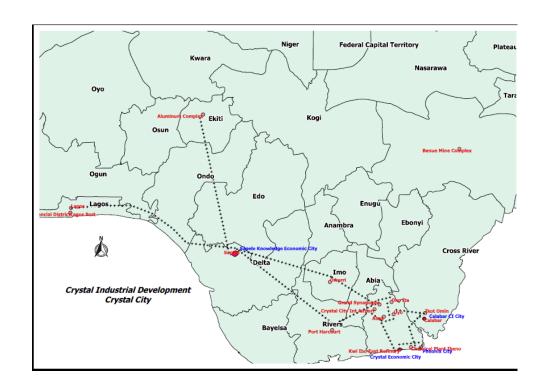


#### **The Concept**

Crystal Industrial Development industrial area will be located along the Gulf of Guinea, covering communities of over 73,700,000 people within Delta, Imo, Abia, Bayelsa, Rivers, Akwa Ibom, Cross Rivers, Calabar and Lagos States, as well as those that will spring up along the coast once the project begins.

These communities will be home to CID new developments as well as supporting spinoff activities generated by this thriving industrial and commercial center.

Besides affording the material amenities that a modern city has to offer, the new community will provide a full range of educational, trade schools, cultural, and recreational possibilities.



Supporting both industrial complex and community will be such essential infrastructure elements as power, waste systems, telecommunications networks, industrial and commercial ports, roads, railroads, and facilities for health care, education, public safety, and all other social services required to prosper millions of people

# Project Financing & Community Benefits

#### **Financing**

Two major types of financing could are envisioned financing for infrastructure and financing for the complex.

Infrastructure: With respect to infrastructure, both private and reinvestment will be utilized. It is envisioned that through Enviro-Pac Group and The Saunders International Group through a PPP will Take over Properties providing the Nigerian Federal Government with its customary share the profits.

This includes the new % of profits Enjoyed by the communities of the Northern, Western, Southern and



Eastern portions of Nigeria all within a twelve –square –kilometer industrial area in each district. These areas proposed shall share in the 20% profits to be reinvestment for free services related to electrical, potable water, wastes waster treatment and municipal solid waste disposal while creating on-going basics and would cover all needed infrastructure services.



#### Financing (cont.)

Housing and Facilities may be funded and financed through the placement of Bank Guarantees.

Other attractive forms of financing could be considered with the assistance of the USA programs under USA Federal Reserve Humanitarian Finance Trade Program, AGOA, MIGA and EXIMBANK.

Additionally with the need to acquire equipment's and services from the US and having US partners lends well for us to exploit the support for equity financed good via the local Banks collaboration with Exim-Bank, international private investment agency of the US Government and other participating governmental bodies worldwide. However, or preference is to pay as we go and to have Crystal City Bankers provide direct equity in order to become self sustained ASAP.





#### **Schedule and Costs**

Planning, scheduling and management are key elements in the timely development of regional industrial project. Comprehensive planning and implementation by competent management experienced in projects of comparable scope are paramount. Additionally, for reasons of overall efficiency, management responsibility should reside in a single entity Crystal Industrial Development Group.





Mining & (OML) Site Taker Over

and Community Share

- Trade / Partner \$135.25 Billion
- \$135.5 Billion Equity Fund
- \$130.224 Billion Build Out
- Company OML Group
- Free Services
- Share Holder
- Exchange Free Services





#### Benefits to Community (CSEP)

Free Electrical Energy
Free Clean Water
Free Waste Water Disposal
Free Municipal Waste Disposal
Job Development & Training



• NORTHERN 21.6%

• SOUTHERN 23%

• WESTERN 27%

• EASTERN 28.4%

Revenue Shares = Infrastructure Build Outs Per Area of OML Sites with Community Participation



### Aggregate Share Disbursement

**Company Share Government Nigeria** 

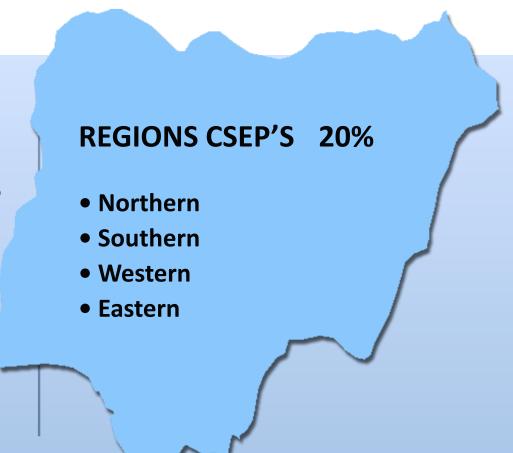
Nigerian Government 21%

59%

New Group

Power Switch

- The Saunders International Group
- Enviro-Pac





#### CONCLUSION

Income Service To Be Shared In The First 2 Year Of Operations

- 100% By The New OML Group
- \$783,400,000.00 First Year and
- \$783,400,000.00 In The Second Year

OML Group to install up to 20% of its net revenue annually for the infrastructure development based on the community benefit program.



# Industrialization & Primary Industries

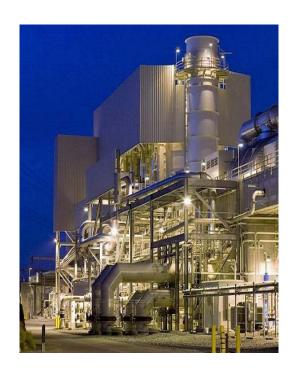
#### **Overall Industrial Concept**

Electric power generation capacity is central to industrial complexes, particularly where raw material are processed and manufactured for export.

Additionally occurring is light and medium manufacturing and commercial activity which could be developed incidental to the major industrial facilities. These activities would be fostered by the establishment of the entire development area as a free zone.

Food related industries, automated vessel un-loading and loading coupled with building material industries such as glass and steel are low-cost electric power users and could be logically developed and produced in the early part of the development.

It is envisioned that the development might ultimately involve a community of 3,000,000 or more households.



Infrastructure to support the industrial complex in Nigeria and the creation of an aluminum and steel factory would include major housing along with light and medium commerce.

An onshore/offshore port facility will be built, expanding the hydrocarbon industry facility, as other transportation elements are made available to connect the fuel source supply from the major regions within the central and coastal provinces by rail, highway, air and pipe lines.

#### **Industrial Projects**

Fundamental to the development of CID is the selection of industries which are appropriate to the area. Among the factors which must be considered are availability of labor; availability of low-cost energy including reasonably priced and reliable electric power; and access to export markets.

Considering these factors, the following industries are presented as examples of those which can be presented as appropriate for the development of a CID.

However, it is again emphasized that these industries are merely illustrative and do not include all candidates.

Any final selection will require detailed study as part of the overall development program.





**Bauxite and Alumina Complex** 

#### Aluminum -

A primary industry would be appropriate for the CID because of the practicality of developing abundant electric power from gas. This industry would convert bauxite and alumina to primary aluminum.

Aluminum produced in such facilities could be sold in the world market.

Further, aluminum processing may be a consideration for future expansion.

**Electrical Power** generation capacity is central to development. Electrical power must be reliable for industry use; it must be abundant in quantity; and it must be reasonably priced. In addition, a large power system constructed for such a complex might also be used to augment energy supplies of other industrial complexes and cities in the coastal region. As gas pipeline systems are continually constructed to deliver and distribute gas for CID from appropriate fields, other infrastructure requirements would include water and sewage treatment as well as telecommunication and support system programs. The keys to the successful development of a complex such as CID is a comprehensive and Integrated

master plan incorporating experience gained in the planning, engineering, and construction of projects of comparable size and diversity as have members of our team participated in scattered sites for Electrical Power production within the grid producing 100 /150MW In gas driven industrial units.

**Hydrocarbons** are a primary energy source for current civilizations. The predominant use of hydrocarbons is as a combustible fuel source. In their solid form, hydrocarbons take the form of asphalt (bitumen). Oil refineries are one way hydrocarbons are processed for use.

Crude oil is processed in several stages to form desired hydrocarbons that are used as fuel, solvents, and numerous commercial and household products. The secondary products derived from hydrocarbons form the basis of major secondary manufacturing zones, creating consumable products for Nigeria as well as for export throughout the world.





Hydrocarbons complex





#### Steel -

A basic steel industry appears to be a prime candidate for inclusion in a complex in western Africa.

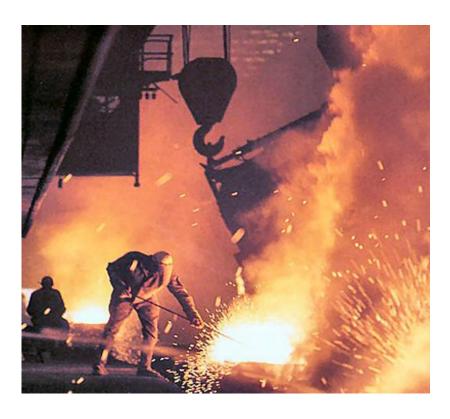
At first, such a facility would be sized to meet the requirements of a Nigerian market, primarily providing structural steel, rebar and pipe.

As future expansions requires, capacity might be significantly expanded to supply neighboring countries and Europe with semi-finished steel, utilizing local iron ore processed into concentrates using natural gas for direct reduction and electric furnace melting.



It is anticipated that during the course of studying the CID other major industries might be identified through discussions with appropriate entities of the Nigerian Government such as Tantalum mining and processing. Other Major projects could be developed based on the natural resources of the country and hydrocarbon resources, in particular. Other industries which could be considered besides those based on hydrocarbons, would include

the smelting and refining of copper, zinc, and lead.





#### **Building Materials**

The rapid development of an industrial complex and attendant infrastructure will create the need for additional building materials for facilities and housing. Accordingly, cement facilities could be considered early in the development of such a complex. This industry should be sufficiently integrated to produce cement; concrete, pre-stressed concreted parts, and prefabricated building materials.

Another important facility might be a glass manufacturing plant, also producing building materials. Also, other building materials, as appropriate, would be considered.



#### **Light and Medium Manufacturing**

The rapid development of an industrial complex and attendant infrastructure will create the need for additional building materials for facilities and housing. Accordingly, cement facilities could be considered early in the development of such a complex. This industry should be sufficiently integrated to produce cement; concrete, prestressed concreted parts, and prefabricated building materials. Another important facility might be a glass manufacturing plant, also producing building material's. Also, other building materials, as appropriate, would be considered.

SAME AS ABOVE



#### **Agriculture**

The existing National Development
Plan recommends the establishment
of a self-sufficient and profitable
agricultural industry. Consistent
with the plan, an agricultural industry
might be established to support the
needs of the CID and other areas of the
province. One candidate approach
might be the development and utilization
of a greenhouse concept for vegetable
production. Such an approach allows



maximum use of limited water resources. A greenhouse facility encompassing about 400 hectares could produce 1,000,000 metric tons of vegetables per year, enough to supply a population of 10,000,000

#### **Food-Related Industries**

A food center-consisting of processing, warehousing, distribution, and cold storage facilities could be developed as part of the industrial base. Utilizing the latest methods and equipment of the food industry, such a center would be able to accommodate local and other markets. Facilities for a merchant fishing fleet and a fish processing plant may be part of a CID port development.

Other products from the area could be processed and stored at CID for the transportation and distribution of food products by ship, rail, and truck.

#### Infrastructure

Significant permanent infrastructure would ultimately be necessary for a large industrial complex such as CID and should be considered during the project planning phase. Such infrastructure would include a community, a port and other transportation facilities, and provisions for electric power, gas, water, and telecommunications. Development of this infrastructure should be phased throughout the implement- ation of the project. Temporary facilities could be utilized during the construction phases of industrial projects.







## Crystal Industrial Development Industrial Projects

#### **Electric Power**

As stated previously, the availability of abundant, low-cost electric power is critical in the development of the industries complex such as CID, and because many of the industries considered are energy intensive, this makes Nigeria's natural gas (mainly the current flared gases) the oblivious choice as the fuel for such an electric power generating system. Increasing the output at the power Plant sites such as Ebgin power station allows for immediate growth and subsequent availability. Such a complex, with appropriate energy



intensive industry, may require several thousand megawatts of electric power.

With the use of the GE LM 6000 and Frame 9 units available today this power can be provided through several units and since multiple units would be used, this assure the necessary reliability and community of service would ultimately be provided. Although little analysis has been made on the transmission system in the coastal area, it may be possible to use Ebgin and other privatized power station throughout Nigeria as the major central power system by adding sufficient capacity to provide power to other centers of commerce and industry, including up to 1,000Mw of new power. It may be desirable to construct another major power facility close to the Gulf of Guinea that uses seawater for condenser cooling. Also, it may be desirable to consider combining power generation with desalinization facilities to provide fresh water for industrial growth. The desalinization facilities could utilize the waste heat and steam from the power plant. The development or extension of the power plant complex and transmission system would be a principal factor in attracting and supporting major industrial development.

#### Kwa Ibo Refinery

Kwa Ibo Refinery, a clean fuel project (\$25.85bn), will be one of the biggest and most important projects identified in Southern Nigeria 2021-2030 National Development Plan.

The project for the Nigerian National Pipeline Co involves the construction of a fourth refinery at Kwa Ibo at a cost of \$14.5bn as well as the construction of a related \$16.3bn clean fuel plant.

Contracts for the project will be signed as early as 2019. Construction will be assigned under a no-bid contract to AMEC while the project management will assigned to Foster Wheeler.

When the first phase is completed in 2024, the refinery will have a capacity to process 215,000 barrels of oil per day. Much of this will be used to help fund a growing demand for electricity.



#### Kwa Ibo East Refinery

The Kwa Ibo East refinery (\$16bn) will be a huge new refinery capable of producing 400,000 barrels per day on the Nigerian's South eastern coast.

The project will be built by several international contractors - with the biggest off taker to be US Caribbean Islands, Spain, Korea's and Japan's Mobil, Exxon, and others.



#### Ibeno Chemical Plant

Ibeno Chemical Plant, (\$15.3bn), is a planned Public Private Partnership project with the NNPC to build out a new Petrochemical Complex similar to the Saudi Jubail Industrial City II, the largest chemical complex ever to be built in a single phase.

The \$19.3bn complex will produce up to three million tones once it is completed.

The main funding - a \$10.3bn is an Investment to be made by Enviro-Pac. Saunders Group and , a Chinese company.

The total amount needed has been agreed upon and is expected to be released within the 3rd or 4th quarter of 2018.



#### **Kwa Ibo North/East petrochemicals complex**



Kwa Ibo NorthEast petrochemicals complex, for Nigeria (\$12bn) New refinery which will be capable of breaking down heavy crude to produce diesel, gasoline, LPG, petrochemicals and jet fuel. It will be operated by a joint venture between Venezuela PDVSA and CITGO once the facility opens and shall be built by a consortium led by Japanese contractor Sumitomo.

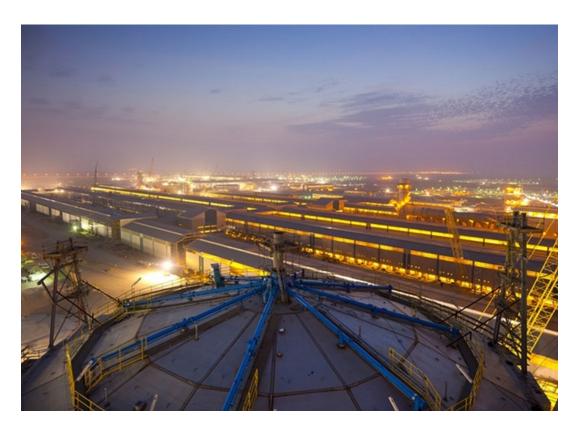
#### **Orin Ekiti Aluminum Complex**

Orin Ekiti Aluminum Complex, \$9.8bn, will be a new complex developed by the Enviro-Pac Mining Group under a Public Private Partnership with the Nigerian Ministry of Mines. Mined products and material will be marketed to US-based aluminum giant Alcoa.

The project includes a bauxite mine, refinery, an aluminum smelter, a rolling mill and a rail link to the nearby Lagos and Crystal Industrial City.

The \$4bn smelter will be completed by a consortium led by Bechtel Corporation.

The mine, capable of producing four million tons of bauxite per year, and the alumina refinery are both set to open simultaneously.



#### **Iron Mine Complex**

Mine Complex will be the biggest iron ore production center, which consists of three open-pit mines, namely Plateau, Benue and Bauchi are to operated as the Mining Center.

In 2020, these mines are expected to produced approximately 120Mt of iron ore. With an average iron ore grade in reserves of about 68%, this is believed to be the highest grade iron ore center in the world.

This Complex, \$25.8bn includes mining, smelting operations and roll mills and the production and mining of tantalum, and rare earth materials.





New development of a mine, processing facility and infrastructure at to produce MAC lump and fines (15 Mtpa).

# Crystal Industrial Development Commercial & Infrastructure Projects

# **Phoenix City**

- Crystal Industrial Development Phoenix City, \$25bn, will be one of the prominent and largest developments in West Africa.
- Phoenix City, extending from the Southern side of Okopso to Child Point will cover approximately 38 km² and will eventually house up to 200,000 people.
- The \$35bn project is to be developed in several different zones containing residential, commercial and financial districts.
- Phoenix City will include a new waterfront, a \$275m mall, 22 hotels, two golf courses and four offshore islands.
- The city will also be home to the iconic Phoenix Stadium an 80,000-seat showpiece stadium for Nigeria's 2028 World Cup and the venue for the tournament's final.
- The project, due to complete in 2025, will be overseen by the Alvin James Group, the real estate development component of Enviro-Pac's.



# **Crystal Economic City**

Crystal Economic City, \$25bn, will be one of the largest of the new economic cities proposed for the Nigeria.

The \$16bn aluminum refinery and the development of an economic city around it, including a port, an aluminum smelter and scores of other industries, will require significant contractor involvement.

Enviro-Pac and its team shall appoint Mecomar, a Morocco company (Riad the Parent Company) and Malaysian contractor MMC to develop the project which is expected to start moving forward in early 2019.



#### The Community

The community resulting from the CID complex might encompass an area of several thousand hectares and accommodate a population of about 1,000,000 people. This would require the construction of about 25,000 dwelling units and apartments complexes. The residential development could be based on a neighborhood concept designed to accommodate residents in a balanced mix of low-density, single-family units and more concentrated multiple-family units. Such a variety would offer living accommodations suitable to various family sizes and family incomes.

The commercial land-use pattern of the new community should establish clearly defined commercial facilities of the neighborhood, community and regional type. The facilities could be designed to be compact in form, efficient in function and visually pleasing. Community facilities such as schools, health facilities, cultural and religious building, government buildings, and recreational areas should be included.



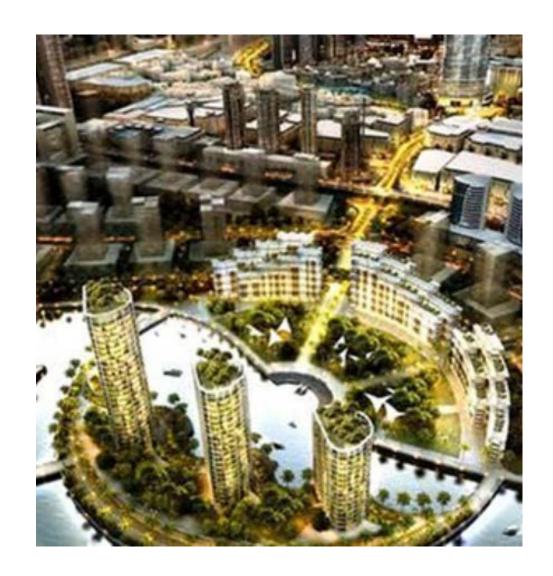




# **Projects**

Crystal City Mega-project will be designed to contain:

- More than 100 condominium and hotels,
- A Universal Studios complex,
- A public park that is bigger than Disney World.
- a golf course-based complex by Tiger Woods
- The \$4.75bn Crystal City is planned to be a Public Private Partnership joint venture with the Nigerian Government and the Alvin James Group, and additionally may include local development groups.



#### Training -

Through the management of projects on all continents, CID team members have learned that employee training is one of the most important aspects. It has also witnessed the major impact that training can have on the social and economical life of a large region.

To support the development of a program as complex as CID, a coordinated (USA HSBCU) which is USA Black Universities shall assist in providing the training program over site and use of the existing persons being trained within the vocational schools within and throughout Nigeria will be phased in and implemented throughout the projects development.

Important benefits for the nation of Nigeria would accrue from such a coordinated effort coupling existing and new training programs to enhance the projects efficiency. It would ensure that both Nigerian and African Americans personnel are used to the greatest possible extent, creating a shared and common goal toward independence.







Training would encompass all skill levels from planning through construction to operational support, from labor through senior management and would significantly upgrade the skills of tens of thousands of Nigerians.

It is implicit in the above that the use of this trained labor force would minimize the need to import labor and would thus serve to broaden the economic base for Nigerians which would be an additional benefit the country as a whole.

Also, since the training program would begin early and would be coordinated with manpower requirements during project implementation, it will serve to ensure the orderly and efficient progress of the overall development.

Finally, this program approach will leave a large cadre of trained personnel which will not only bring many returns over the near term but over future generations.



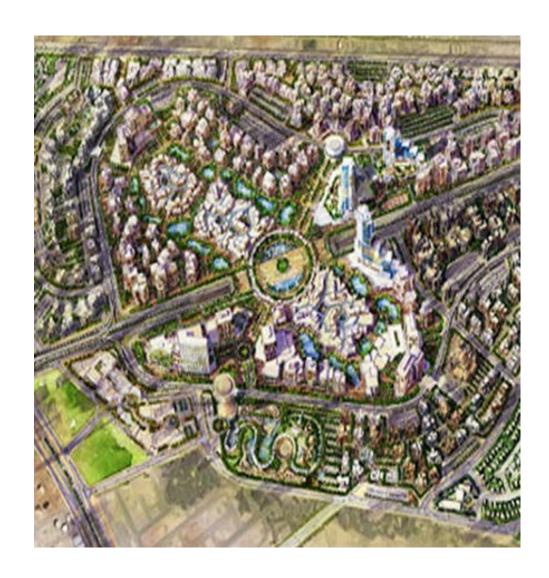


# Sapele Knowledge Economic City

Sapele Knowledge Economic City project, \$6bn, is proposed to be the new gateway to education and trade schools.

Knowledge Economic City it is to be a 4.8km m2 zone to be developed just 5km away from the Sapele port, the main axis route connecting the airport and train station for the new western link of the Crystal High-Speed rail.

The project will be built over several phases, with a master plan proposing a large, gated residential community, a knowledge cluster with various shoals colleges and academic institutes, a hospitality and commerce tower, International trade complex, museums quarter expansion at the Bujang Valley Archaeological Complex with additional showing of the African American Heritage and Culture, apartments for students and residents community center, sport complexes, churches and mosques.



# Lagos Financial District

Lagos Financial District, \$7.8bn - The new commercial heart of Lagos Nigeria will be overseen by the Lagos Government and Enviro-Pac Investment Team.

The project is an attempt to build a financial center in West Africa to match some of the world's major financial hubs and includes the construction of up to 80 new towers, a station for Crystal Cities proposed new metro system, hotels, conference facilities, shops and restaurants.

The towers will include a new home for Nigeria's stock exchange, Enviro-Pac and the International Trade Market Authority.



#### **Ikot Ekpene Grand Sancturary**

Ikot Ekpene Grand Santurary development \$24.4bn

This project will cost \$26.6bn and will see considerable expansion of the main pilgrimage site for Christian worldwide.

The work, which is expected to be completed in just over five years, will cover the redevelopment of 400,000 m2 on the North West and north east of the Sancturary from the new stations for the arrival of passengers from the Abak, Uyo, Oko Ita, Ikot Omin and Calabar High Speed Railway.

The area will also be expanded and designed to accommodate an increased capacity of 2.5 million worshippers and visitors.



#### Transportation

The implementation of CID will necessitate the expansion of rail, air, and land transportation facilities for movement of people and goods within the complex and coastal area. The existence of the new airport facility in Lagos provides for a unique fitting for the CID project being developed in the coastal area it serves. It may

between the area selected for CID and the existing port facilities in Nigeria. This would allow the desirable inter-connection between the industrial complex and the national railroads and should be in accordance with the national rail development program and connecting African nations. Initially, CID should include an airport for propeller-driven cargo planes and executive jets, with provisions later for rail shuttle for cargo connecting the current international airport with CID Complex. Secondary and feeder roads should be constructed early in the projects development along with highways to connect CID with other principal cities.

be desirable to provide a rail line





#### **Metro and Light Rail**

# LLOYD PROVIDE NIGERIA MAP

Crystal Cities Metro a light railway, \$7bn, to run Nigerian new combined metro and light railway system, is being developed to link several key areas of the Southern Nigeria.

The project, estimated to be worth a combined \$7bn, will begin with an above ground component running through commercial areas and ports in an East -West direction along the coast and within 100 miles inland north of the Crystal City.

It will be supplemented by six light rail lines - a 55km line running to Island locations and a 13km line running throughout the City of Lagos with connections at the city's central bus station, Sapele and Bony Island.



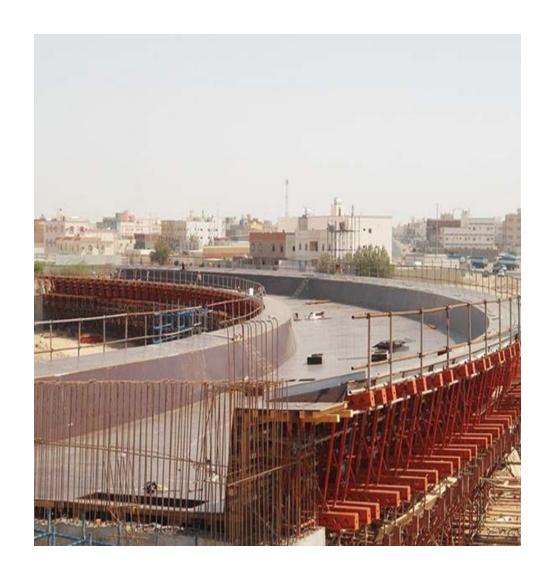
# Crystal City High Speed Rail

Crystal City High Speed Rail, \$9.1bn.

This project entails a new 450 km high-speed rail line linking Crystal Industrial City, Lagos, Crystal City International Airport, Mega Entertainment Center, Ikot Ekpene Grand Sanctuary and Pheonix City

The project is aimed at transporting pilgrims, work force and tourism to the above locations much more quickly and efficiently.

The project involves the construction of up to 50 bridges and is set to start before end 2019..



#### Metro Rail

Crystal Industrial will develop a Metro Rail network, \$31bn. Crystal Industrial Railways Co will announced the award of the bulk of the first phase of contracts for the Stations to Metro (pictured) USA contractors, handing out deals worth a combined \$8.2bn for the construction of the main Red Line, the Green Line and its two major stations Crystal Education City.

The estimated \$400m worth of deals which is for design and consultancy roles shall be given to a Woman Owned Minority Contractor from the USA with local Nigerian companies for all the expected phases of the lines, rolling stock, and operations and maintenance deals shall be via US and Chinese.

The first phase of the Metro is likely to complete in 2025. Meanwhile the design of the heavy rail network, which will be carried out in three phases, is shall be given to Morris Knudsen is under consideration. It will eventually connect to Calabar and the coastal cities to Lagos and Port Harcourt and we plan to construct a wide rail network.

Crystals Metro Plans for the six-line, 85-station metro network planned for Southern Nigeria design of three of the major stations—Lagos Financial District, Owerri Capital of IMO states and Calabar Crystal Industrial Cities Hub—we are networking with a consortiums led by France's Vinci Construction, Canada's Bombardier, Spain's FCC Construction and Austria's Strabag Group. The six-line network is to be built with a view to providing an integrated public transport system to a city whose roads are already incredibly busy, and whose population is projected to grow by 20% by 2030..



# Metro Rail

- Crystal Industrial will develop a Metro Rail network, \$31bn.
- Crystal Industrial Railways Co will award the bulk of the first phase of contracts, approximately \$8.2bn, to USA contractors for the construction of the main Red Line, the Green Line and its two major stations Crystal Education City.
- An estimated \$400m worth of contracts, for all phases of design and consulting, will be awarded to Women Owned Minority Businesses from the USA and to local Nigerian companies.
- Rolling stock and operations and maintenance contracts will be awarded to US and Chinese companies.
- The first phase of the Metro is likely to be completed in 2025. It will eventually connect to Calabar, the coastal cities, Lagos and Port Harcourt. Additionally, we plan to construct a wide rail network.
- The design of the heavy rail network, carried out in three phases, shall be given to Morris Knudsen is under consideration.
- Crystal Metro plans for the six-line, 85-station metro network planned for Southern Nigeria will include three major stations at the Lagos Financial District, Owerri Capital of IMO states and Calabar Crystal Industrial Citie. The six-line network is to be built in an effort to provide an integrated public transport system to an area whose roads are already congested and w.hose population is projected to grow by 20% by 2030

 Planning for this effort is being coordinated with a consortiums led by France's Vinci Construction, Canada's Bombardier, Spain's FCC Construction and Austria's Strabag Group.



# **Crystal City International Airport**

Midfield Terminal Complex, Crystal City International Airport Afaha Ikot Ebak area, \$3.3bn, will be built by a consortium of contractors that will include Con-Real Construction as the lead TAV Construction Group.

The project involves construction of a new terminal with two main runways.

Once complete, the building will have a capacity to handle up to 40 million passengers a year. Its ceiling will reach 52m at its highest point and its central space will be large enough to house three football pitches (soccer field).

Work will start on the development of the required to build the terminal.

This Airport will additionally become a Hub for PacTrans and Enviro-Pac's cargo delivery program throughout the Western African region



The project also included the construction of 39km railway traversing between Area C and existing Yandi rail infrastructure.

# **Crystal City International Airport**

Crystal city International Airport Afaha Ikot Ebak area, \$13.5bn, is expected to be the largest airports project to be undertaken in the region.

- Construction of this project will require approximately 40,000 during peak periods.
- The project has the potential to create new routes with PacTrans and China's cargo hub and to become the preeminent hub in the Gulf.
- Robert Luster, President of Luster International, will be the consortium leading the construction of the facility.
- Crystal City's Special Economic Zone Designation shall allow access to the AGOA markets via airfreight for produce, floral, seafood and other products along with International Flights.



#### **Port**

The National Development Plan recognizes the need for the development of port facilities in the area contemplated for CID. Provisions should be made to accommodate the recommendations of the plan. The port would be a principal element in a CID complex. It would provide for the receiving and shipping of all imported and exported materials. During the initiation of construction, the project could be served from the local port by barge on via a connecting rail line to CID.

Many port configurations could be considered for the development. However one concept which may be attractive in the CID area would utilize a sea side land with dock located about one kilometer off shore. The sea side dock could be connected to the shore by a causeway to carry pipelines, conveyors, rail lines, and roads. The modern port facility could also be designed to accommodate general cargo and bulk materials and should allow for the expansion as the complex expands. During construction of the major port of facilities, shipment of liquid materials might be accomplished through the use of monomooring terminal system. These operations could later be transferred to a fully developed port. A ship repair facility could also be provided to service vessels visiting the area. The port complex might also include provisions for fishing fleet and naval base.







#### OVERVIEW BULK HANDLING AND SCREW UN LOAD/LOADING SYSTEM

Nigeria West Africa ("NWA") consists of a port facility with adjoining parcels totaling 2500 + acres.

To be located in Nigeria the coastal region within the CID sites.

- The port will be modernized to house a container and bulk grain handling systems that will increase capital and economic growth.
- The Bulk Grain/Bagged terminal will be capable of handling 1.6 million tons of cargo annually with increased capability to 4.6 million by the year 2020. The capacity of unloading will approximately 1,000 TPH. A bagging plant will be established at the port to facilitate packaging of the bulk grains.
- The Container port will be strategic in the delivery of packaged goods in and throughout the Central West African Region and will be set to handle 10,000 units monthly.
- The port modernization will include the installation of rail and road to adequately move the products into the export market place and for delivery to neighboring countries.



# Port & Refinery

Crystal City Port and Refinery \$14bn is an ambitious plan to turn one of the lesser populated areas between Upenkang and Kmi Ibo into a new industrial center.

A \$1.5bn dry dock, the second -biggest in the West Africa, will be constructed and given a Special Economic Zone Designation, supported by AGOA. and having a pair of operators to use its proposed liquid jetty terminal and container freight.

The project will support the planned oil refinery new logistics hub to the development of its infrastructure.

Other plans for the Special Economic Zone include petrochemicals plants, a refinery, airport, hotels and housing for more than 100,000 people to work in the city.

The Port and Refinery will eventually link, via railway, to the rest of Crystal Industrial City as planned by Enviro-Pac and its team.

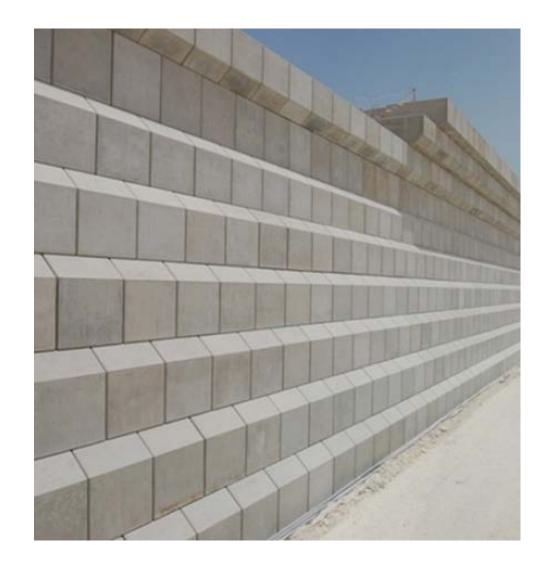


#### Port

Lagos Port, \$5.4bn, is a vital project for Nigeria for many reasons including:

- Delivery of building materials required for its metro, rail, stadiums, roads and other projects
- It will free up a large part of central Lagos where the existing port operates for redevelopment.
- It contains three separate elements stretched over a 26km2 site.
  - the new port,
  - a new naval base and
  - a huge new industrial and logistics zone (Lagos Economic Zone).

Construction design was done by China's Harbor Engineering Co. The construction of the ports commercial terminals, infrastructure and buildings are all expected to be done by Morocco based Riad Port Construction.



#### **Industrial**

With respect to industrial, both private and reinvestment will be utilized. It is envisioned that CID's profits of the new OMI sites will be reinvestment to generate a combined revenue profits of several Billion dollars annually on an on—going basis and phase in the development of the industrial complex annually.

As mentioned earlier, electrical power generation capacity is central to such a project.

Electrical power must be reliable for industry use; it must be abundant in quantity; and it must be reasonably priced. In addition, a large power system constructed for such a complex might also be used to augment energy supplies of other industrial complexes and cities in the coastal region. As gas pipeline systems are continually constructed to deliver and distribute gas for CID from appropriate fields other infrastructure requirements would include water and sewage treatment as well as telecommunication and support system programs.

The keys to the successful development of a complex such as CID is a comprehensive and integrated master plan incorporating experience gained in the planning, engineering, and construction of projects of comparable size and diversity as have members of our team participated in.





#### **Natural Gas**

As stated, natural gas, a major natural resource of Nigeria would be fuel for the necessary electric power generation facilities. In addition, it provide the basis for a hydrocarbon industry, for high gas consuming industries such as the current steel plant among other energy intensive industries.

Large-diameter, cross-country pipelines can easily be constructed to bring the gas to the CID complex area as well as other area needs.

The pipelines will transport gas to the complex from several fields to be exploited. The pipeline system could include field gathering systems at appropriate crude production areas, light hydrocarbon, sulfur, and dehydrating facilities would be necessary to assure trunk pipeline quality gas



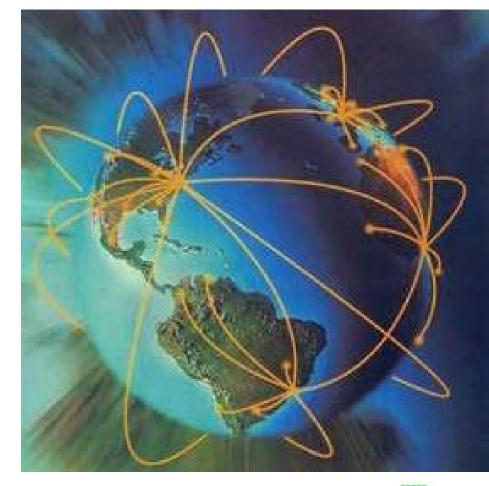




#### **Telecommunications**

A modern communication system is now being developed by newly formed joint ventures of Nigerian and foreign groups. It is envisioned that CID will utilize these groups for all telecommunication needs.

The telecommunication system, expected to be Installed, will link satellites to ground and or fiber optics for telephone, telefax, radio, and television and e commerce.



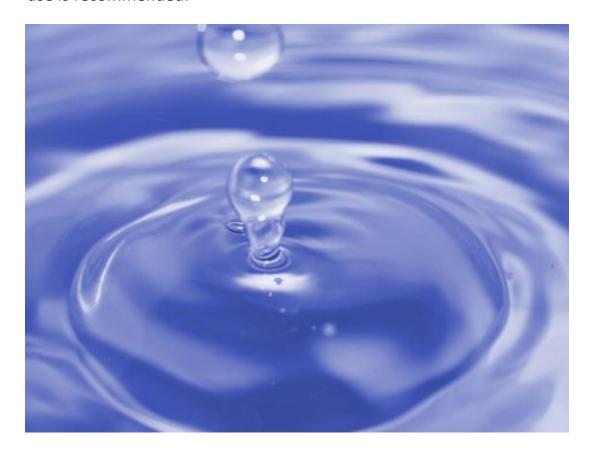




#### Fresh Water

Fresh water is essential for industrial, municipal and power use, as well as for potential agricultural development within the CID area. It is likely that natural fresh water supplies will have to be supplemented with desalted water/brackish water from a combined power-desalting complex; desalting plants could use waste heat from the electric power generating system.

To supplement this supply, municipal waste water recycling for industrial and agricultural use is recommended.







# Crystal Industrial Development Contractors Experience

#### **Luster International Corporations**

Luster International Engineering shall enlist the services of Aecom and Bechtel Corporation as a lead management, consultant and engineering designer to the CID Nigerian Industrial Development Complex and OML site management and working in conjunction with the Enviro-Pac represented by Mr. Aage Holm, Wilbahi Engineering Nigeria, and The Saunder International Group and its associates are experienced in all aspects of regional industrial development and are currently active in Western Africa.

It is even more important that the CID development move swiftly to become the leader in this area.

Luster International Engineering working with Aecom and Bechtel Corporation with its associates have successfully completed many projects of \$100 Million to \$50 Billion dollars and additionally the Bechtel Corporation Group designed and built out the first large scale industrial chemical complex in Saudi Arabia now known as Jabell.





#### **Bechtel Corporations Experience**

Bechtel Corporation has over 75 years of service in major projects and has built and designed 350 port facilities worldwide, Bechtel Corporation has grown from a dedicated family to 170,000 employees worldwide, and now operates in some three hundred countries, and seven continents.

Bechtel Corporation represents many nationalities and includes graduate engineers and technical personnel as recruited out of semiretirement, and having been former members of worldwide companies. Through Bechtel Corporation we have access to thousands of craftsmen in the engineering and construction management related fields.

Finally, through Bechtel's long experience and collaboration with by Mr. Aage Holm, and Enviro-Pac Group affiliates makes them attuned to the needs and desires of the Nigerian Government and its people.

In its role the Bechtel Corporation in collaboration with by Mr. Aage Holm, USA, Luster International Engineering, Wilbahi Engineering Nigeria, and Enviro-Pac Group will utilize Nigerian personnel, companies and services and when applicable materials to maximize its efforts at bringing CID to an operational state within a short time with continued expansions.

Despite the magnitude of Bechtel's organizational size and international scope, it functions as a family business with the old fashioned truths, aspiration, and closeness which has a modern outlook, with the family philosophy of trust and integrity remaining in its foundation.





#### Why? Luster International Engineering Chose Bechtel Corporations Experience (cont.)

Throughout its 75 year history, the Bechtel Corporation and associates has dedicated their services to industries through-out the world. Despite their emergence as one of the leading management, engineering, and construction groups in the world, it is Bechtel's policy to maintain a position and profile consistent with the best interest of its clients. Bechtel's owner's reputation through the years has been earned through proven achievements and project dedication.

Bechtel engineering, construction and management company with associates having gained world-wide experience in the development of natural resources and energy intensive industries, has the competence to consult and manage the development through design, engineering, procurement and construction management.

Finally, the Bechtel Corporation is ready willing and able to work with the new OML group and see that the CDI project is a success.

The Bechtel Corporation is prepared to undertake the consulting and management role for this project size and through its associates are ready willing and able to proceed upon the receipt of a fully executed contractual agreement with the CID development team.







The Bechtel Corporation and associates have worked with organizations such as the Luster International Engineering to support implementation of major regional industrial developments, such as the CID complex envisioned for Nigeria. The company is sensitive and responsive to the needs of the countries in which it works. As an example, The Bechtel Corporation plans to involve people in the training of thousands of people every year as an integral part of project development to utilize the labor force of the country.





SABINE PASS LNG LP - LOUISIANA



ALMA ALUMINUM SMELTER - CANADA



YARWUN 2 REFINERY STAGE 2 - AUSTRALIA



# AMEC and Bechtel Corporations Experience (cont.)



**HOOVER DAM - NEVADA** 



HONG KONG INTERNATIONAL AIRPORT - HONG KONG





CSPC NANHAI PETROCHEMICAL COMPLEX - CHINA



BECHTL ANGOLA LNG - ANGOLA

ADVANCED MIXED WASTE TREATMENT PROJECT - IDAHO



Some of Bechtel's and associates major undertaking, which illustrates the diversity and scope of its activities, are summarized below:

- 162 Fossil fuel units totaling over 45,462 MW
- 52 nuclear generating units totaling over 40,056 MW
- 20,000 MW of hydroelectric generating capacity
- 30 major grass-roots refineries and 79 refinery expansion/modernizations
- 61 petrochemical plants, including basic and intermediates.
- 43 chemical, pharmaceutical, and food projects.
- 19 fertilizer facilities
- 17 pulp and paper projects.
- 67 major mining and metallurgical projects.
- 62 marine terminals and 350 ports.
- Over 40,000 kilometers of petroleum and gas pipe lines and 700 kilometers of slurry pipelines.
- Over 3,000 kilometers of railroads.
- Over 9,500 kilometers of highway and roads in 45 countries.
- 5 major telecommunications projects involving satellite, ground stations, microwave radio and switching and cable networks.
- 4 metropolitan rapid transit systems.







In addition The Bechtel Corporation and associates have been deeply involved in the planning, design, and construction of airports, desalting plants, ports, petrochemical facilities, power plants and environmental projects. The associates have planned and built several new towns and communities and have been in or is currently responsible for over 50 projects worldwide. In undertaking these projects, appropriate staff from all parts of the group are utilized.

This includes engineers, technicians, urban planners, economists, financial specialists, sociologists, transportation planners and ecologist.

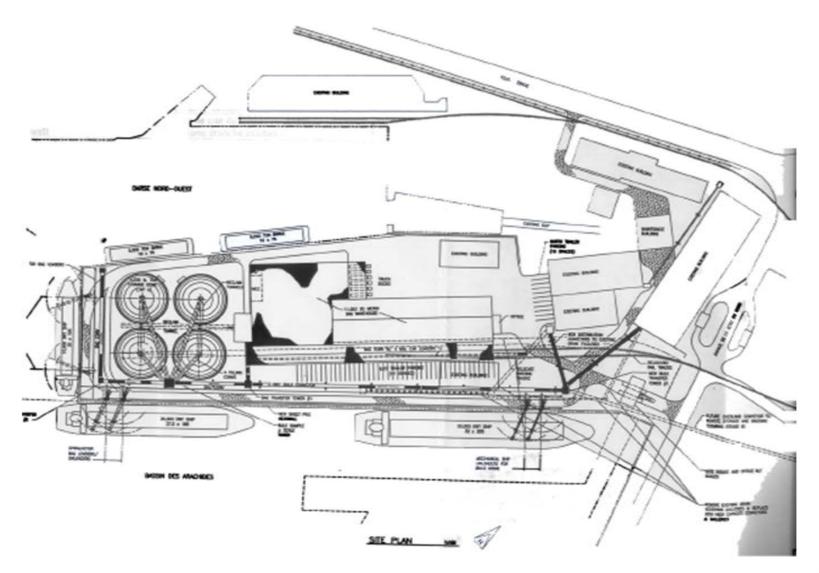
The Bechtel Corporation also plans to maintain in Nigeria extensive research and development programs associated with the new OML group and direct its process ensuring that its engineers and scientists are current in state-of-the-arts technologies and that the best and most economical processes are applied in each project undertaken.

Thus, full-service capabilities within a single organization are available.



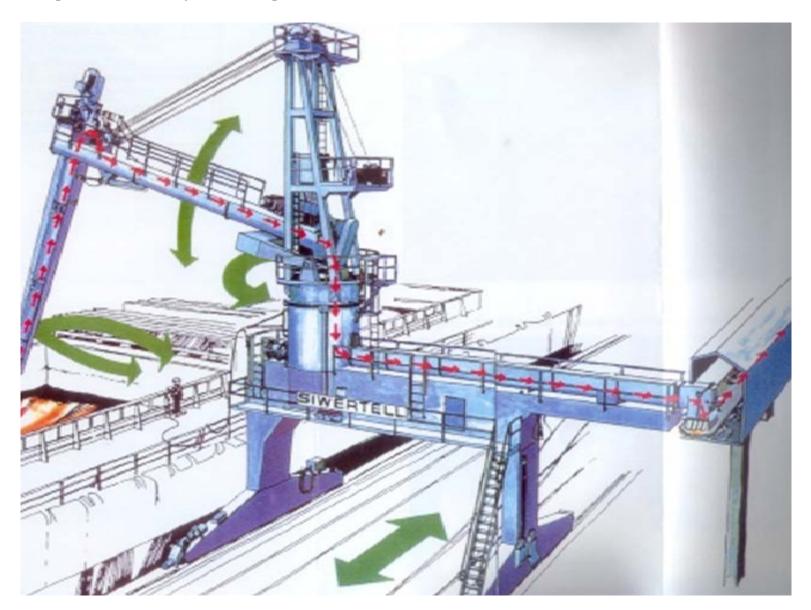








# Aage Holm Conceptual Design





# Aage Holm Arial View - Three Spiralveyor (Houston, Texas)





# Aage Holm Arial View – Spiralveyor (Belgium)



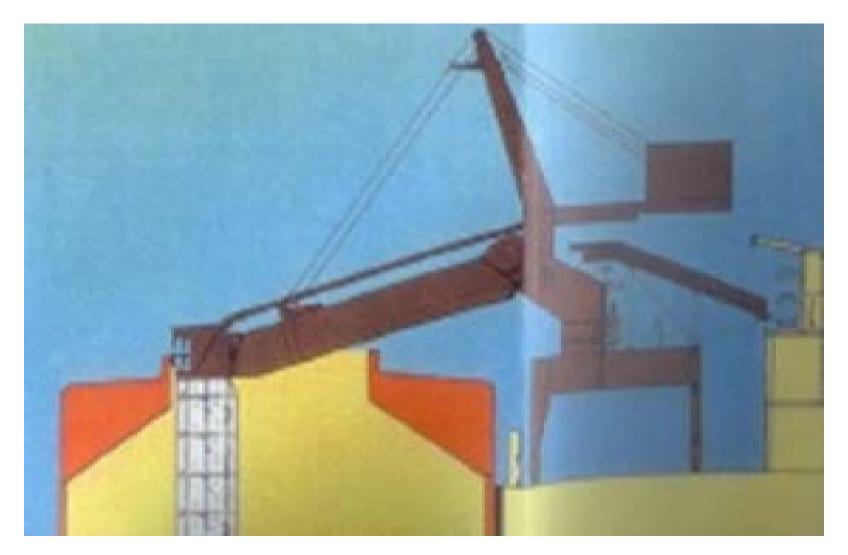


# Aage Holm Arial View - Spiralveyor (Working in Ship Hold)





# Aage Holm Arial View - Spiralveyor (Working a 40,000 DWT Ship)





# Enviro-Pac / The Saunders Group

Enviro-Pac Los Angeles California 1-818-297-6635

E-mail: lloydenergy@aol.com