



# ANNUAL GROUP REPORT JUNE 2016 – APRIL 2017

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**BATC DEVELOPMENT BHD**





# REMARKS BY GROUP EXECUTIVE CHAIRMAN



**Dato' Seri Mohd Safie M. Jaffri**  
**Group Executive Chairman**  
**BATC Development Bhd**

Energy security and independence are vital to national security and to the socio-economic development of any country. The rise and fall of a nation depends on the strength and sustainability of their energy resources. Unfortunately, the passionate pursuit of energy resources and the high level of dependence on fossil fuel have caused climate change and global warming which must be addressed immediately.

I call upon all leaders in the world to work towards a mutual agreement to coordinate and unify the clean energy and biofuel policies and ensure the market's stabilization in order to secure an efficient, economic and regular supply of clean energy and biofuel to the industry and consumers while securing a steady income to producers and a fair return on capital for those investing in this industry.

BIONAS is willing and able to issue investment to meet the demand of any country for biofuel or waste to energy projects in their respective countries. BIONAS takes proactive steps by collaborating our expertise and technology with any party to make climate action a reality.



# STATEMENT BY GROUP CHIEF EXECUTIVE OFFICER



**ZURINA AMNAN**  
**Group Chief Executive Officer**  
**BATC Development Bhd**

10<sup>th</sup> May 2016

To our stakeholders:

I am pleased to confirm that BATC Development Bhd reaffirms its support of the Ten Principles of the United Nations Global Compact in the areas of Human Rights, Labour, Environment and Anti-Corruption.

In this annual Communication on Progress, we describe our actions to continually improve the integration of the Global Compact and its principles into our business strategy, culture and daily operations. We also commit to share this information with our stakeholders using our primary channels of communication.

Sincerely yours,

A handwritten signature in black ink, appearing to read 'Zurina Amnan'.

Zurina Amnan



# THE TEN PRINCIPLES OF THE UN GLOBAL COMPACT

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## **HUMAN RIGHT**

1. Bionas support and respect the protection of internationally proclaimed human rights.
2. Bionas make sure that we are not complicit in human rights abuses.

## **LABOUR**

1. Bionas uphold the freedom of association and the effective recognition of the right to collective bargaining.
2. Bionas eliminated all forms of forced and compulsory labour.
3. Bionas support the effective abolition of child labour.
4. Bionas eliminated all discrimination in respect of employment and occupation.

## **ENVIRONMENT**

1. Bionas support a precautionary approach to environmental challenges.
2. Bionas undertake initiatives to promote greater environmental responsibility.
3. Bionas encourage the development and diffusion of environmentally friendly technologies.

## **ANTI-CORRUPTION**

1. Bionas work against corruption in all its forms, including extortion and bribery.



# INTRODUCTION

Bionas Agropolitan Technology Corridor Development Berhad or better known as BATC Development Berhad under its tradename “BIONAS” was incorporated in 2004 and the project launched in 2007 with the objective of promoting Jatropha Curcas planting for fuel production as well as to generate wealth creation within the Malaysian Economy.

The Company’s main unique selling proposition lies in its technology, supply chain, branding control, its price leading position, and the relative low entry cost of producing Jatropha biofuels by outsourcing a major portion of its supply chain costs and risks to existing yet idle multi-million dollar refineries, third party nursery partners and partnering land owners and farmers.

## *VISION*

BIONAS envisage developing new sustainable green economic activity which will enhance economic growth in rural areas and simultaneously eradicate poverty.

## *MISSION*

To become the leading producer of sustainable third generation renewable energy, which is environmentally friendly, does not contribute to deforestation, does not compete with food production while at the same time providing and improving socio-economic value to local communities.



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# FINANCIAL REPORT

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Bionas has launched the Jatropha planting program for biofuel in Malaysia in 2007 with paid up capital of RM1.0 Million. In 2011, it's paid up capital was raised to RM100.0 Million. In 2009, the company has started venturing to other countries with more than 40 countries at present.

Not included the sales by its joint venture companies in other countries, Bionas' audited sales in 2008 was RM20.0 Million, 2009 at RM32.0 Million, 2010 at RM61.0 Million, 2011 at RM72 Million and 2012 at RM88 Million.

The sales for year 2008 to 2009 were from Jatropha seeds, seedlings, fertilizer and pressing mills; and the increased sales for year 2010 to 2012 were from 'samples' of biofuel additives.

After the products registration was approved by U.S Environmental Protection Agency (U.S EPA) on January 29, 2013, the company has secured a significant amount of commercial biofuel contracts in many countries and this will contribute to a drastic increase in sales volume for year 2013 to 2015 estimated to reach up to RM5.0 Billion.

The Company has developed eight (8) new clean energy and biofuel products for diesel, gasoline, heavyfuel, jetfuel , energy and power plant industries from various feed stocks including Jatropha, Algae, Canola, Rubber seed oil, Cotton seed oil and Used cooking oil.

Bionas clean energy and biofuel products are offered at the same price or lower than the international fossil fuel prices.



# ABOUT BIONAS



## **DATO' SERI MOHD SAFI'E M. JAFFRI, GROUP EXECUTIVE CHAIRMAN**

Dato' Seri Mohd Safi'e M Jaffri, Malaysian, is the Executive Chairman of Bionas Group of Companies. He is the Chairman of the Malaysia National Member Committee of the World Energy Council (WEC).

Prior to Bionas, he has acted in the capacity of Executive Chairman and Chief Executive of several national and notable organizations within the technology, investment and property development sectors in Malaysia and Singapore. These include chairmanships in public companies listed on the Main Board of Malaysia and the property development groups in Singapore.

His vision has led Bionas to take a leading position in the biofuel sectors globally. His unique concept and methodology in developing the Jatropha plantation has not only positioned the company in the global business arena but also contributed in poverty eradication amongst rural community as one of the principle of socioeconomic empowerment.

His investment into Nano-Emulsion and Polarization in biofuel production has created a revolutionary technology to the biofuel industry providing solution to the governments in any country to streamline and implement their National Biofuel Policy. His leadership has resulted in outstanding performance of the company in many countries with good increment in annual profits.

The Company is now a Member of the Climate Technology Centre Network (CTCN), UNEP and the Business Participant of the UN Global Compact (UNGC) and one of the Signatories for Caring for Climate (a joint initiatives of UNGC, UNFCCC and UNEP).

For his remarkable efforts in green and clean energy, he has been acclaimed with award and recognition from California Takshila University for excellent work in promoting energy independency and Appreciation Letter from the United Nations Environment Programme (UNEP).



# ABOUT BIONAS



**ZURINA AMNAN, GROUP CEO**

Zurina Amnan, Malaysian, is the Chief Executive Officer of BIONAS Group of Companies. She is the Secretary of the Malaysia National Member Committee of the World Energy Council (WEC).

Zurina has been key in mapping out the Group's core strategies. She leads the operational supply chain, and business and corporate relations of the Group.

The Company's investment into Nano-Emulsion and Polarization technology in biofuel production has created a revolutionary in energy sector towards bio-energy sustainability and security. The production cost has reduced tremendously and the use of multi-feedstock has resulted to biofuels are offered at very competitive price.

She spent many years to prove the technology by conducting various tests of performance and emission in various climate conditions in many countries. Her leadership quality has extended the company's global presence to more than 50 countries.

Her passion towards bioenergy is expressed through her offer for technological collaboration to any countries in the world to streamline and implement their National Biofuel Policy.



# ABOUT BIONAS



She became one of the Climate Change Leaders for her participation during the United Nations Environment Programme (UNEP) Governing Council Global Ministerial Environment Forum (GC/GMEF) 2011 in Nairobi. She was one of the speakers at the Jatropa World Summit 2008 in Bali Indonesia, the 1<sup>st</sup> Philippine International Bio Energy Conference 2012 in the Philippines, the World Biofuel Market Conference 2012 in Rotterdam, BIT's New Energy Forum 2012 in China, the 4<sup>th</sup> International Conference on Biofuel Standards 2013 organised by the U.S National Institute of Standard and Technology (NIST) in Washington DC, the World Science Forum 2013 in Brazil and ExpoNaval 2014 organised by Chilean Navy in Chile. and the World Energy Congress in Turkey.

She has received a letter of invitation from the UN Secretary General Ban Ki-moon to attend the UN Climate Summit 2014 in New York on 23 September 2014 of which she was also invited by the UN Global Compact to chair one of the Round Table Discussions of the UN Private Sector Forum.

For her remarkable efforts in green and clean energy, he has been acclaimed with award and recognition from California Takshila University for excellent work in promoting energy independency and Appreciation Letter from the United Nations Environment Programme (UNEP).



# ABOUT BIONAS



## Letter from UN Secretary General Ban Ki-moon to Bionas Group Chief Executive Officer, Madam Zurina Amnan



THE SECRETARY-GENERAL

2 September 2014

Dear Ms. Amnan,

It is with great pleasure that I invite you to the Climate Summit I will host at United Nations Headquarters in New York on 23 September 2014.

Climate change, and our response to it, will be the defining issue of our time. Action today will define our ability to achieve the vision laid out in the Charter of the United Nations, from establishing the conditions for peace and justice, to ensuring dignity and equality for all people and nations, and promoting social progress and better standards of life for all. The health of our people, our economics and our planet depends upon it.

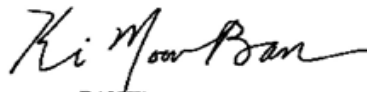
World leaders today have an unprecedented opportunity to reach a meaningful agreement and take actions on the ground that can put us on a path to sustainable prosperity. Governments have agreed to reach such a universal legal agreement in 2015. It is up to leaders from all levels of government, civil society and private sector, to scale up their actions and commitments to make this possible. This is the task before us at the Summit in September.

This is the first Summit I have hosted that brings together leaders from Government, private sector and civil society. In our increasingly interconnected world, vision and ambition must be advanced by a diverse and dynamic public-private partnership. Together, we can leverage our strengths, multiply our means, and shift the global climate trajectory. The Climate Summit will see the largest gathering to date of world leaders to catalyse climate action and to raise political ambition for a meaningful global legal agreement by 2015.

Ms. Zurina Amnan  
Group Chief Executive Officer  
BATC Development Bhd

I invite you to bring ambitious announcements and actions to the Summit and look forward to seeing you in September as we endeavour to provide prosperity, equity and security for this and future generations.

Yours sincerely,

  
BANKi-moon



# ABOUT BIONAS



Bionas is a Business Participant of the UN Global Compact and one of the Signatories for Caring for Climate.

## Caring for Climate



March, 2014

Dear Dato' Seri Mohd Safie M. Jaffri,

We wish to thank you and to recognize your vision and leadership in endorsing the *Caring for Climate* initiative. In addition to your valuable participation to the UN Global Compact, BATC Development Bhd is now part of the largest global business movement to address climate change, endorsed by over 350 companies from 60 countries.

The climate change crisis has risen to the top of the international agenda with growing public concern. Companies, local governments and countries have already recognized and are capitalizing on the benefits of moving towards low carbon, climate resilient and green economy pathways. With *Caring for Climate*, the UN Global Compact, the UN Environment Programme (UNEP) and the secretariat of the UN Framework Convention on Climate Change (UNFCCC) seek to (i) mobilize businesses on a global scale to take a stand for a low-carbon and climate resilient economy through their processes, products and services; as well as (ii) inform the climate change global policy agenda in order to contribute to progress in the intergovernmental climate change process.

*Caring for Climate* offers ongoing engagement opportunities for signatories, in particular through events, publications and collaborative action platforms. Further information on upcoming engagement opportunities can be found on the initiative's website at [www.caringforclimate.org](http://www.caringforclimate.org).

We welcome BATC Development Bhd to the *Caring for Climate* initiative and look forward to working with you.

Sincerely,

**Georg Kell**  
Executive Director  
UN Global Compact Office

**Christiana Figueres**  
Executive Secretary  
UN Framework on Climate Change

**Sylvie Lemmet**  
Director  
UNEP DTI

Dato' Seri Mohd Safie M. Jaffri  
Group Executive Chairman  
BATC Development Bhd



# ABOUT BIONAS



Bionas becomes the first Private Sector Member to join the Climate Technology Centre and Network (CTCN).



23 April 2014

Re: Application for CTCN Membership  
Applicant Reference: N0011  
CTCN Reference: 2014/Membership06/BATC Dev. Bhd.

Dear Ms. Aminuddin,

Thank you for your application for the CTCN membership. We have completed our assessment of your application.

I am pleased to inform you that the BATC Development Bhd. has been granted the CTCN membership.

As detailed in the information note, which can be accessed on our website at ([http://www.unep.org/climatechange/ctcn/Portals/50212/Guideline\\_CTN\\_membership%20application.pdf](http://www.unep.org/climatechange/ctcn/Portals/50212/Guideline_CTN_membership%20application.pdf)), CTCN members are invited to play a meaningful role in information sharing and capacity building, to provide as appropriate, technical assistance in response to country requests (response projects), and participate in outreach and networking activities.

I look forward to working in close collaboration with the BATC Development Bhd. toward serving the interests of the developing countries by providing high quality and diverse expertise in the transfer of climate technologies.

Yours sincerely,

Jukka Uosukainen  
CTCN Director

Ms. Norazlina Aminuddin  
BATC Development Bhd.  
No 87-1 1<sup>st</sup> Floor, Jalan Raja Mahmud  
Off Jalan Raja Abdullah  
Kampung Baru, 50300  
Kuala Lumpur  
Malaysia



Climate Technology Centre and Network  
UN City, Marmorvej 51, 2100 Copenhagen, Denmark  
UNEP CTCN webpage: [www.unep.org/climatechange/ctcn](http://www.unep.org/climatechange/ctcn)  
Email: [ctcn@unep.org](mailto:ctcn@unep.org)



# ABOUT BIONAS



Bionas becomes the first Private Sector Member to join the Climate Technology Centre and Network (CTCN).

 <b>CTCN</b> <small>CLIMATE TECHNOLOGY CENTRE &amp; NETWORK</small>		<b>The Climate Technology Network (CTN)          Membership Application Assessment (New Application)</b>	
<b>Application Data</b>			
To be completed by officer completing Part I Submission completeness			
Reference	N0011	Applicant Organization	BATC Development Bhd.
Contact person	Dato' Seri Mohd Safie'M. Jaffi Ms Norazlina Aminuddin	Contact email	<a href="mailto:safie@bionas.com.my">safie@bionas.com.my</a> <a href="mailto:norazlina@bionas.com.my">norazlina@bionas.com.my</a>
Type of institution	Private Sector Organization		
Country of Registration	Malaysia		
Date of receipt of application	24 February 2014 (initial submission)/ 14 April 2014 (additional information)		
Assessment due date	As the additional information was provided on 14 April, later than the assessment due date, the assessment period was extended.		
Note	As the additional information was provided		
<b>Technical Appraisal</b>			
To be completed by officer completing Part II Substantive assessment			
Recommendation	Grant membership <input checked="" type="checkbox"/>	Decline membership <input type="checkbox"/>	
Thematic area of expertise	Mitigation <input checked="" type="checkbox"/>	Adaptation <input type="checkbox"/>	
Mitigation sectors	Energy, Transport (biofuel)		
Adaptation sectors	N/A		
Service areas	Investment, Technology development and transfer, Collaboration in innovation, Capacity building, Knowledge sharing		
Geographical scope	Asia, LAC, Africa		
Summary of assessment	<p>BATC Development Bhd was incorporated in 2004. Since 2007, the organization has invested in plantation and processing of <i>Jatropha</i> and blending, storage and distribution of <i>Jatropha</i> based biofuel for industry and transport extensively in Southeast Asia and also in LAC and African countries. The organization has established Joint Ventures in 40 countries internationally for cultivation, processing and/or storage and distribution of the products. The organization produces eight additives/biofuel products transport, power generation and industrial applications with certified quality.</p> <p>The financial stability was demonstrated by statements for fiscal years 2010, 2011 and 2012.</p> <p>The organization commits to the mission of the CTCN and to abide by the CTCN code of conduct.</p>		
Date of recommendation	17 April 2014		
Recommendation by	Yuko Nagata, Interim Network Manager		
<b>Final Decision</b>			
To be completed by the Director of the CTCN or delegated officer			
Final decision	Grant membership <input checked="" type="checkbox"/>	Decline membership <input type="checkbox"/>	
Comments			
Date of decision	23 April 2014		
Decision by	Jukka Uosukainen, Director CTCN		
Signature			



# ABOUT BIONAS



## Speaker Invitation to Bionas Group Chief Executive Officer, Madam Zurina Amnan for World Energy Congress – Istanbul 2016



### Istanbul 2016 Organising Committee

World Energy Council Turkish Member Committee  
Cinnah Cad. No:67/15, 06680, Çankaya-Ankara, Turkey  
T (+90) 312 442 82 78 – 79 | F (+90) 312 441 9610  
[www.wec2016istanbul.org.tr](http://www.wec2016istanbul.org.tr) | [info@wec2016istanbul.org.tr](mailto:info@wec2016istanbul.org.tr)

### World Energy Council

5<sup>th</sup> Floor, 62 – 64 Cornhill, London EC3V 3NH, UK  
T (+44) 20 7734 5996 | F (+44) 20 7734 5926 | [www.worldenergy.org](http://www.worldenergy.org)

Ms. Zurina Amnan  
Group CEO  
Bionas  
15 - 3, Jalan Seri Rejang,  
Rampai Business Park South,  
Taman Sri Rampai,  
53300 Setapak,  
Kuala Lumpur  
Malaysia

2<sup>nd</sup> December 2015

Dear Ms. Amnan,

### World Energy Congress – Istanbul 2016 Speaker Invitation

On behalf of both the Organising Committee for the 23<sup>rd</sup> World Energy Congress and the World Energy Council, it is our great pleasure to invite you to speak at the next Congress, to be held in Istanbul, Turkey from 9 – 13 October 2016.

Running since 1924, the triennial World Energy Congress is the World Energy Council's global flagship event and offers a unique platform for global energy leaders to challenge conventional thinking and explore new strategies. The previous Congress in Daegu in 2013 attracted over 7,500 delegates from 123 countries and included more than 50 government ministers.

Under the theme of "Embracing New Frontiers", the 23<sup>rd</sup> World Energy Congress takes place at a moment of critical transition in the energy industry and in a world of extraordinary change. This Congress will be a milestone for global dialogue and consensus building to ensure we collaboratively address the World Energy Trilemma and deliver practical solutions into a better energy future.

The Congress programme will include a number of prominent sessions and side events spread over the four days. We would be keen to discuss your possible speaking involvements in these events. Please let us know your key contact and we would be happy to provide further details.

A separate invitation will follow from the Turkish government. Please note that this invitation is non-transferable.

We sincerely hope you will accept this invitation to participate in the 2016 Congress. For further information please do not hesitate to contact us directly. The key contact for speaking involvement is Mrs. Charlotte Kidd at [kidd@worldenergy.org](mailto:kidd@worldenergy.org).

Sincerely yours,

Hasan Murat Mercan  
Chairman  
Istanbul 2016 Organising Committee

Christoph W. Frei  
Secretary General  
World Energy Council



# ABOUT BIONAS



Bionas Group Executive Chairman, Dato' Seri Mohd Safi'e M. Jaffri  
appointed as Chairman of the Malaysia Member Committee of the  
World Energy Council

**WORLD  
ENERGY  
COUNCIL**

Dato' Seri Mohd Safi'e M. Jaffri  
Group Executive Chairman  
BATC DEVELOPMENT BERHAD (Company no. 653565-U)  
(Bionas Agropolitan Technology Corridor)  
15-3, Jalan Seri Rejang  
Rampai Business Park South  
Taman Sri Rampai, Setapak  
53300 Kuala Lumpur, Malaysia

World Energy Council  
62-64 Cornhill  
London EC3V 3NH  
United Kingdom

T (+44) 20 7734 5996  
F (+44) 20 7734 5926  
[info@worldenergy.org](mailto:info@worldenergy.org)  
[www.worldenergy.org](http://www.worldenergy.org)  
[@WECouncil](https://twitter.com/WECouncil)

13 September 2016

Dear Mr. Dato' Seri Mohd Safi'e M. Jaffri,

We are delighted to learn that you have taken over the position of Chair of the Malaysia Member Committee of the World Energy Council. The role which you are taking on is vital to the continuing success of the Council and we look forward to working in close collaboration with you over the years to come.

It would be helpful to the Council's London Office if you could provide us with a brief biography and a photo for our files. Please forward to Sophie Rose, Manager, Member Services at [srose@worldenergy.org](mailto:srose@worldenergy.org).

Again, congratulations upon your appointment.

Sincerely,

Dr. Christoph Frei  
Secretary General  
World Energy Council



# ABOUT BIONAS



Bionas Group Chief Executive Officer, Madam Zurina Amnan  
appointed as Secretary of the Malaysia Member Committee of the  
World Energy Council

Zurina Amnan  
Group CEO  
BATC DEVELOPMENT BERHAD (Company no. 653565-U)  
(Bionas Agropolitan Technology Corridor)  
15-3, Jalan Seri Rejang  
Rampai Business Park South  
Taman Sri Rampai, Setapak  
53300 Kuala Lumpur, Malaysia

**WORLD  
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[info@worldenergy.org](mailto:info@worldenergy.org)  
[www.worldenergy.org](http://www.worldenergy.org)  
@WECouncil

13 September 2016

Dear Ms. Zurina Amnan,

We are delighted to learn that you have taken over the position of Secretary of the Malaysia Member Committee of the World Energy Council. The role which you are taking on is vital to the continuing success of the Council and we look forward to working in close collaboration with you over the years to come.

We would be pleased to introduce ourselves over a call in the near future, to exchange views on the opportunities and challenges that lay ahead. Please contact Sophie Rose, Manager, Member Services at [srose@worldenergy.org](mailto:srose@worldenergy.org) to advise when would be a convenient time to participate in such a call. We enclose an orientation pack that will serve as an introduction to the Council in the meantime.

It would be helpful to the Council's London Office if you could provide us with a brief biography and a photo for our files. Please forward to Sophie Rose, Manager, Member Services at [srose@worldenergy.org](mailto:srose@worldenergy.org).

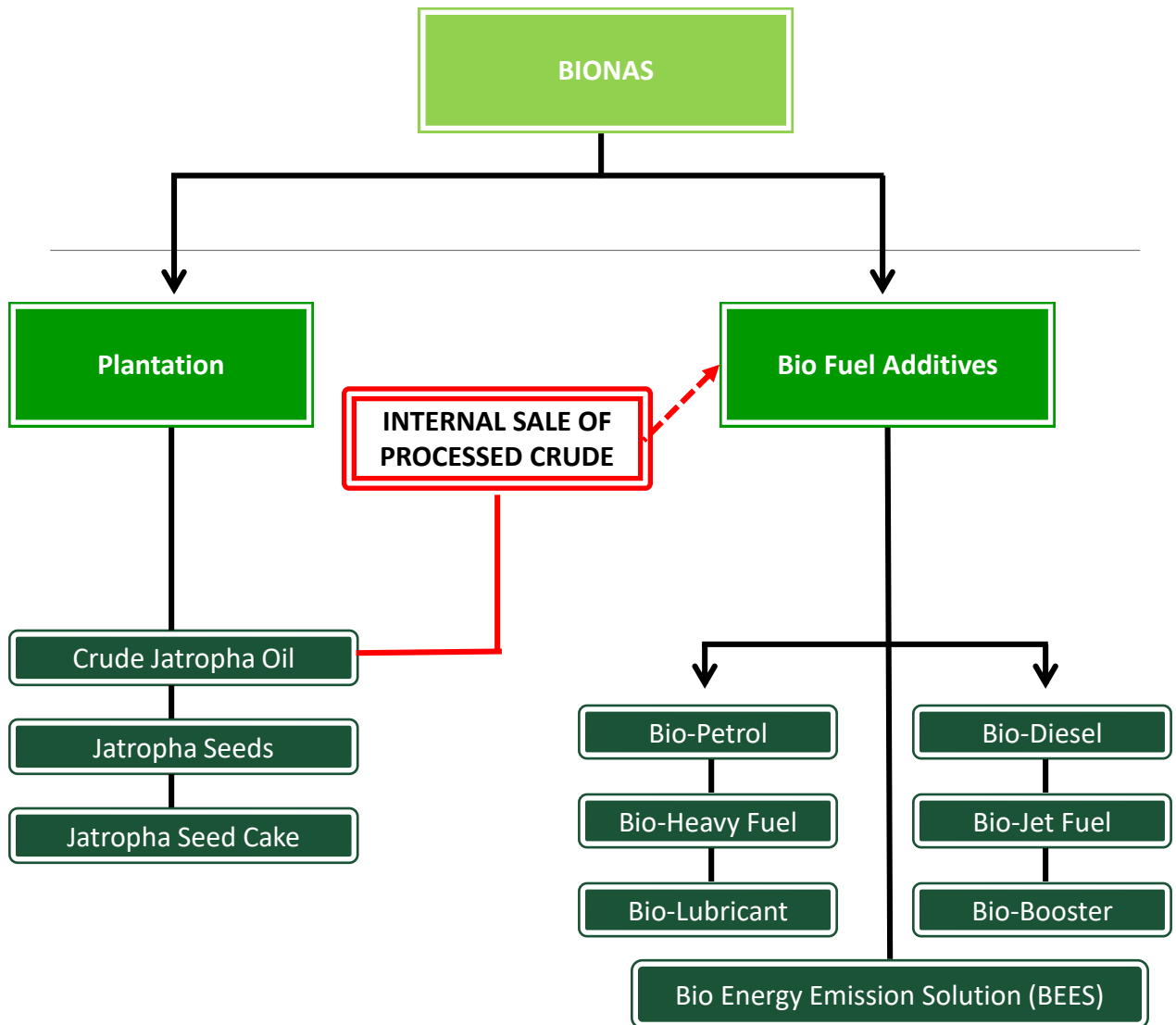
Again, congratulations upon your appointment.

Sincerely,

Dr. Christoph Frei  
Secretary General  
World Energy Council



# BUSINESS OVERVIEW



## Our core businesses are:

- Jatropha Plantation
- Production Of Bio-Fuel Additives through Nano-Emulsion & Polarization Technology.

All of our Crude Jatropha Oil (CJO) are use for our internal consumption and further processed as ingredients for our bio-fuel additives.

# JATROPHA FEEDSTOCK FAST FACTS



***JATROPHA CURCAS***

PROPERTIES	JATROPHA
Climate Type:	Tropical
Seed Oil Content:	30% - 37%
Average Annual Yield / Hectare (1 <sup>st</sup> –3 <sup>rd</sup> Year):	6.0 Mt
Average Annual Yield / Hectare (4 <sup>th</sup> Year Onwards):	12.0 Mt
Lifespan:	50 Years
Harvest Period:	Monthly after 6 months
Crude Oil Price / Mt	USD 400
Byproducts	Seed Cakes i.e: Biomass Briquette



# PRODUCT OVERVIEW



## PRODUCT OVERVIEW:

The table below entails the products and its respective technology type and stages:

#	Products	Technology & Stages		
		Stage 1	Stage 2	
		Polarization	Nano-Emulsion	Nano-Emulsion & Polarization
1	B20 (W) Bio-Petrol	-	Yes	-
2	B20 (M) Bio-Petrol	Yes	-	-
3	B20 (J) Bio-Diesel	-	-	Yes
4	B25 Bio-Heavy Fuel	Yes	-	-
5	Super Bio-Jet Fuel	Yes	-	-
6	Bio Energy Emission Solution (BEES)	Yes	-	-
7	Bio-Tablet Booster	Yes	-	-
8	Bio-Superlube Additive	Yes	-	-

### Polarization

Generally and briefly describing, Polarization Technology allows for alignment of positive and negative ions of elements and this is achieved under high pressure and highly magnetic environment. This further allows for the elements to form stable bonds with each other. This technological breakthrough enables the production of new types of additives that when it is blended with fossil fuels and other elements creates a stable mix of a 2<sup>nd</sup> generation renewable fuels.

### Nano-Emulsion

Nano-emulsion Technology is a chemical process of blending fossil fuel, bio-feedstocks and specific types of chemical which in-turn reacts and mix to form stable bonds with each other.



# TECHNOLOGY & IMPLEMENTATION CONCEPT



The key success factor for Bionas lies in the application of its technology for the production of bio-fuel as well as the implementation concept in developing its plantations.

The applied technology and implementation concept is proven to be effective and has been the driving factor for the growth of the Company.

With this technology, Bionas managed to make minimum savings of US\$30 million on transesterification refinery and this saving is channelled back to the farmers by offering good price for their harvest.

## Applied Technology For The Production of Bio-fuels

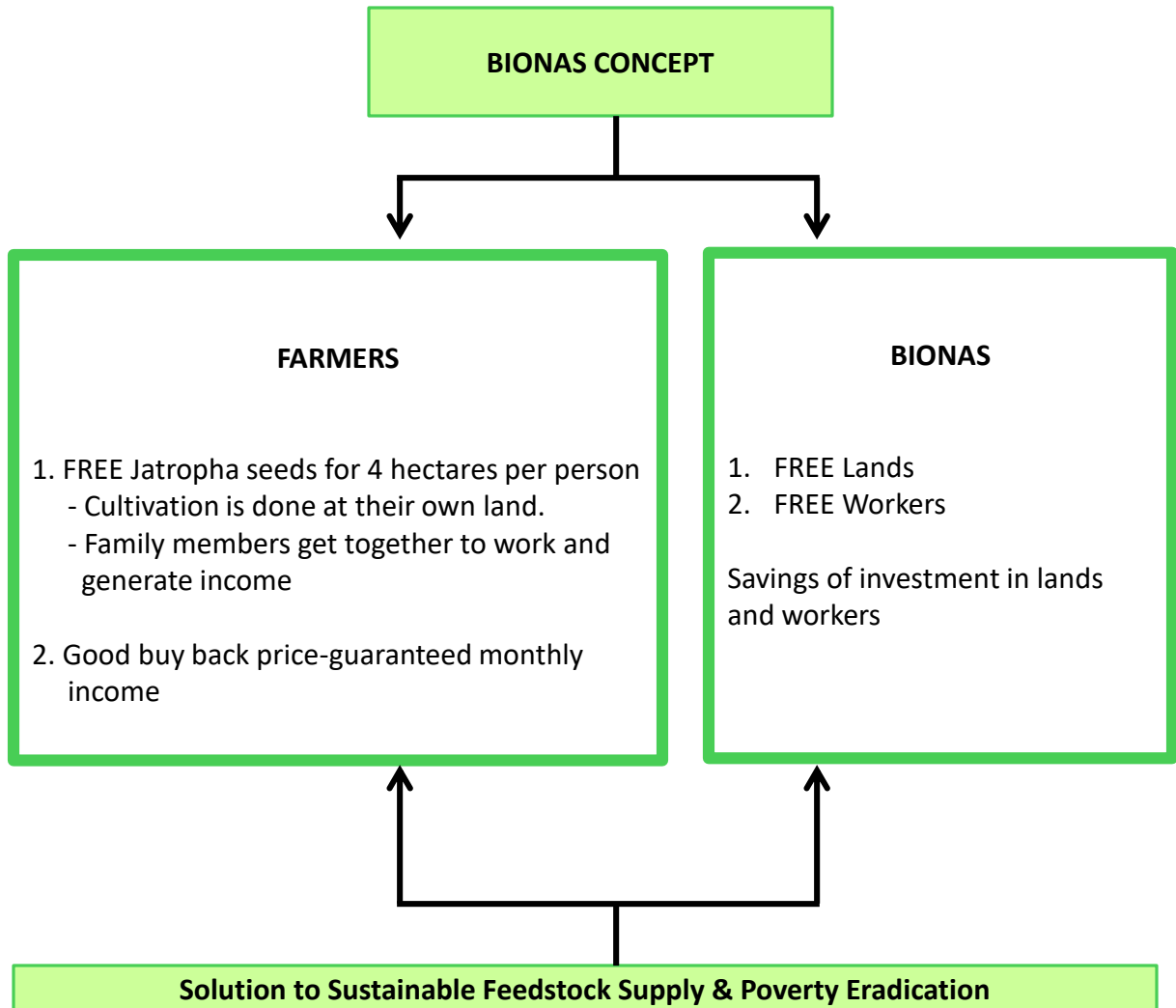




# TECHNOLOGY & IMPLEMENTATION CONCEPT



## Implementation Concept For Plantations

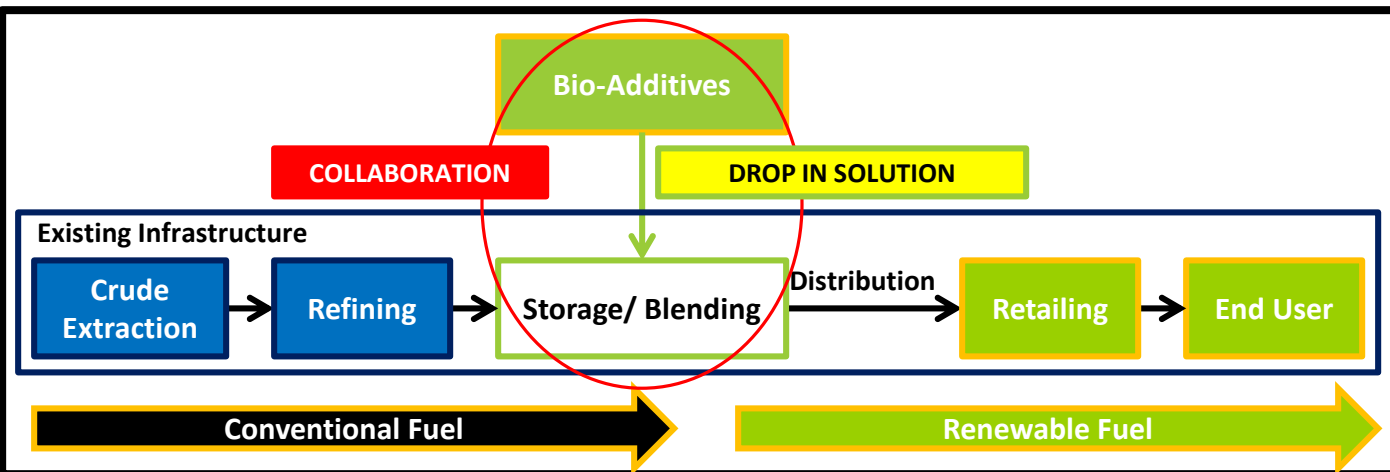




# TECHNOLOGY & IMPLEMENTATION CONCEPT



## Implementation Concept For Bio-Fuel Additives



We acknowledged the fact that to build new infrastructures and replacement of engines and machineries specifically for bio-fuels are cost-intensive and impractical. We strive to find ways of conducting businesses using smart approaches and most of our R&D work centers on finding ways to minimize or eliminate the impracticalities.

Today, we have successfully formulated and synthesized a very stable mixture of bio-fuels with Nano Emulsion and Polarization Technology which requires blending & storage tanks to mix bio components and fossil fuels. Even though most of our additives are Jatropha based, we have the technology to formulate “Drop-In” additives derived from other types of feedstock such as used cooking oil, canola, cotton seed oil, algae etc.

As bio-fuels and renewable fuels are comparatively new to existing fossil, we do not wish to be seen as competitor to the oil majors. Instead we opt and prefer to **collaborate** with the oil majors, national oil and energy companies to further enhance their existing products and turning them into renewable fuels. We firmly believe that through collaboration with the oil majors we would be able to speed up the promotion and use of renewable energy, minimize or eliminate investments required for infrastructure setups and utilizing the oil majors’ industry knowledge & experience, retailing, and supply chain. Through our technology, we believe this could also reduce the use of fossil thus prolonging the life of oil reserves.



# BIONAS PRODUCTS REGISTRATION, CERTIFICATION & TEST REPORTS



The Company's products registration with U.S. Environmental  
Protection Agency (EPA).



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

JAN 29 2013

OFFICE OF  
AIR AND RADIATION

Bio Oil National Corporation  
Ms. Zurina Amnan  
Group Chief Executive Officer  
1525 Long Beach Blvd.  
Long Beach, CA 90813

Dear Ms. Amnan:

Pursuant to your September 6, 2012 notifications, the following fuel additives have been registered per 40 CFR 79.23 (our internal identification number precedes the name):

267620001	Additive M30 Petrol
267620002	Additive B10 - B30 Bio-Diesel
267620003	Bio-Booster Tablet
267620004	Bio-Booster Liquid

Note that per 40 CFR 79.21(f) you would be required to notify us in writing if certain information in your notification were to change. In addition, note, that with your notification, you have provided assurances that you will not represent, directly or indirectly, in any notice, circular, letter, or other written communication, or any written, oral or pictorial notice or other announcement in any publication or by radio or television, that registration constitutes endorsement, certification, or approval by any agency of the United States.

Please call (202) 343-9648 if you have any questions.

Sincerely,

Byron J. Bunker  
Director  
Compliance Division

Internet Address (URL) • <http://www.epa.gov>  
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Certificate of Fuel Additive Registration from Department of Energy,  
Ministry of Energy, Philippines to Bionas Philippines Corporation



REPUBLIC OF THE PHILIPPINES  
DEPARTMENT OF ENERGY

## ***Certificate of Fuel Additive Registration***

This is to certify that the Department of Energy has duly registered **B30 & M30**, a Diesel/Gasoline Fuel Additive to **BIONAS PHILIPPINES CORPORATION** as Trader of said additive in accordance with the provisions of Section 27, Chapter 3 of R. A. 8749 otherwise known as "The Philippine Clean Air Act of 1999".

This Registration can be revoked anytime for non-compliance with the Department's reportorial requirements and failure to adhere with other conditions prescribed by the Department.

Issued this 31<sup>st</sup> day of October 2013, at the Department of Energy, Energy Center, Fort Bonifacio, Taguig City, Metro Manila.

  
**CARLOS JERICO L. PETILLA**  
*Secretary*

**Control No. : CFAR 13-08-206/FCF-T**





Permanent Registration for B30(M) Bio-Petrol and B30 Bio-Diesel issued by  
the Ministry of Energy, Philippines for  
Bionas Philippines Corporation



Republic of the Philippines  
**DEPARTMENT OF ENERGY**

Dr. Sharif Adzhar H. Sarahadil  
Chairman & CEO  
Bionas Philippines Corporation  
Bgy. East Poblacion, Salug  
Zamboanga del Norte

Dear Dr. Sarahadil:

This refers to your application for registration of B30 & M30 fuel additive which you intend to market to your clients.

In view of the substantial compliance and merits of your application, and without prejudice to other requirements of the Department of Energy pursuant to the provisions of Section 27, Chapter 3 of R. A. 8749 (*The Philippine Clean Air Act of 1999*), **B30 & M30** fuel additive is hereby granted Permanent Registration under your company name with **CFAR No. 13-08-206/FCF-T** effective from the date of issuance indicated herein.

This Permanent Registration is subject to your compliance of the following conditions:

- 1) Consistency with the guaranteed performance of the product;
- 2) B30 & M30 should only be used as an additive and not for any other purposes;  
and,
- 3) Submission of and full compliance with the quarterly reportorial requirements (Schedule VII-A).

Non-compliance to any of the above conditions shall automatically result to the revocation of said Permanent Registration.

This registration should not in any way be construed as an endorsement of the product nor be used for advertisement and commercial purposes.

Very truly yours,

  
**CARLOS JERICO L. PETILLA**  
Secretary



IN REPLYING PLS CITE:  
**SOE-JLP-13006034**



Energy Center, Merritt Rd., Fort Bonifacio, Taguig City, Metro Manila 1201 Philippines  
Tel. Nos.: Trunkline (632)840-1401; Telefax (632) 840-2067; (632) 840-2138; (632) 840-4244; Fax (632) 840-1731; Hotline (632) 840-2130  
Website: [www.doe.gov.ph](http://www.doe.gov.ph) E-mail: [info@doe.gov.ph](mailto:info@doe.gov.ph)



# Test result by PUSPAKOM (Malaysian Government Vehicle Inspection Agency) with 94% Emission Reduction.



**LAPORAN PEMERIKSAAN KENDERAAN** (M1-PH0207)

**PUSPAKOM** Unit Teknik dan Penyelidikan  
PUSPAKOM SDN. BHD.  
(Company Incorporated in Malaysia)

Buta-butir kenderaan motor yang diuji dalam laporan ini pada tarikh lanya diperiksa adalah mematuhi kehendak kehendak perundangan.

NO. KEPUTUSAN: A 259768

NAMA: SCA HYGIENE MALAYSIA SDN. BHD. A1904489

ALAMAT: NO. 3 JLN. GICEND HAJU 28/23 HICOR 2ND. EST SECTOR C 48408 S. ALAM SELANGOR

NO. PENDAFTARAN	BUN9428	NO. CASIS TRELER	
NO. ENJINMOTOR #	FD45-B31811	BUATAN	NISSAN
NO. CASIS #	PH0N4L8P8T8S1813	MODEL	N4LB
NO. TRELER		TAKAN DIPERBUAT	2887
STATUS PEMILYAK	SYAROKAT	KADAR LKM (PM)	8.88
KELUPAIAN ENJINMOTOR 4517		TARIKH PEMERIKSAAN AKHIR	
BAHAN BAKAR	DIESEL HAJU	KOD PUSAT AKHIR	
KATEGORI KENDERAAN	PERKHIDMATAN AWAM-BAS PEKERJA	TARIKH PEMERIKSAAN	03-JAN-2014 DATE
JENIS BAHAN	BAS	KOD PUSAT	854 PUSPAKOM SHAH ALAM
TARIKH PENDAFTARAN		KOD PEMERIKSA	2721, 2721, 2721
BERAT TANPA MUATAN	5580	SUL 71	
BERAT DENGAN MUATAN	7598	MUATAN TEMPAT DUDUK	29
WARNE	PUTIH	ABSESPV	Tidak
ODOMETER	215628		

Semua spesifikasi dan diuji diagap komponen-komponen ini adalah:  
SPEKTRUMETER - DIESEL

**LAPORAN PEMERIKSAAN KENDERAAN** (M1-PH0207)

**PUSPAKOM** Unit Teknik dan Penyelidikan  
PUSPAKOM SDN. BHD.  
(Company Incorporated in Malaysia)

Buta-butir kenderaan motor yang diuji dalam laporan ini pada tarikh lanya diperiksa adalah mematuhi kehendak kehendak perundangan.

NO. KEPUTUSAN: A 259815

NAMA: SCA HYGIENE MALAYSIA SDN. BHD. A1905134

ALAMAT: NO. 3 JLN. GICEND HAJU 28/23 HICOR 2ND. EST SECTOR C 48408 S. ALAM SELANGOR

NO. PENDAFTARAN	BUN9428	NO. CASIS TRELER	
NO. ENJINMOTOR #	FD45-B31811	BUATAN	NISSAN
NO. CASIS #	PH0N4L8P8T8S1813	MODEL	N4LB
NO. TRELER		TAKAN DIPERBUAT	2887
STATUS PEMILYAK	SYAROKAT	KADAR LKM (PM)	8.88
KELUPAIAN ENJINMOTOR 4517		TARIKH PEMERIKSAAN AKHIR	
BAHAN BAKAR	DIESEL HAJU	KOD PUSAT AKHIR	
KATEGORI KENDERAAN	PERKHIDMATAN AWAM-BAS PEKERJA	TARIKH PEMERIKSAAN	04-JUL-2014 DATE
JENIS BAHAN	BAS	KOD PUSAT	854 PUSPAKOM SHAH ALAM
TARIKH PENDAFTARAN		KOD PEMERIKSA	1283
BERAT TANPA MUATAN	5580	SUL 71	
BERAT DENGAN MUATAN	7598	MUATAN TEMPAT DUDUK	29
WARNE	PUTIH	ABSESPV	Tidak
ODOMETER	215228		

Semua spesifikasi dan diuji diagap komponen-komponen ini adalah:

## BEFORE USING BIO-BOOSTER TABLETS

Berkuatkuasa 1 Julai 2014, "Brake Imbalance" untuk gandar belakang akan diambarka sebagai lusa atau gagal.  
Silia pastikan brake gandar belakang kenderaan anda disetel dengan baik selepas tarikh tersebut.

KETUA LORONG: 1941

KENDERAAN				TRELER			
BAHAGIAN ATAS	DELICOR B31 (A1) #	BREX #	BAHAGIAN BAWAH	BAHAGIAN ATAS	BREX #	BAHAGIAN BAWAH	
L	L 1:7 4/4	L 1:7 4/4	L 1:7 4/4	L	L 1:7 4/4	L 1:7 4/4	L 1:7 4/4
METER LAJU	APAS BUNYI	ADAP #	ADAP #	METER LAJU	APAS BUNYI	ADAP #	ADAP #
SUSPENSI	LAMPU PUNCAK	LAMPU PUNCAK	LAMPU PUNCAK	SUSPENSI	LAMPU PUNCAK	LAMPU PUNCAK	LAMPU PUNCAK
A1	A2	A3	A4	A1	A2	A3	A4

PERMELIKAN SIKLA DREHENDAK  
SEBELUM ATAU PADA 02 FEB 2014

PETUNJUK  
# : Ubat ini akan diambarka mengikut 80%  
NO. BOKS: 1700 (80% BOKS) No. 804  
A1: Gandar 1, A2: Gandar 2, A3: Gandar 3, A4: Gandar 4  
L: 100, R: 100, 1: Imbalance, P: Brake Tension

\*\* PUSPA /03-JAN-2014 /13:38:38 /508182/155/LR0 BEAT 4/LR0 BEAT 6/259768/111488550964 \*\*\*\*\*

PERHATIAN UNTUK PEMILIK  
TARIKH PEMERIKSAAN SAH BERKESHA

04-JUL-2014  
8:08 AM

DRB-HICOM

## AFTER USING BIO-BOOSTER TABLETS

Berkuatkuasa 1 Julai 2014, "Brake Imbalance" untuk gandar belakang akan diambarka sebagai lusa atau gagal.  
Silia pastikan brake gandar belakang kenderaan anda disetel dengan baik selepas tarikh tersebut.

KETUA LORONG: 1339

KENDERAAN				TRELER			
BAHAGIAN ATAS	DELICOR B31 (A1) #	BREX #	BAHAGIAN BAWAH	BAHAGIAN ATAS	BREX #	BAHAGIAN BAWAH	
L	L 1:7 4/4	L 1:7 4/4	L 1:7 4/4	L	L 1:7 4/4	L 1:7 4/4	L 1:7 4/4
METER LAJU	APAS BUNYI	ADAP #	ADAP #	METER LAJU	APAS BUNYI	ADAP #	ADAP #
SUSPENSI	LAMPU PUNCAK	LAMPU PUNCAK	LAMPU PUNCAK	SUSPENSI	LAMPU PUNCAK	LAMPU PUNCAK	LAMPU PUNCAK
A1	A2	A3	A4	A1	A2	A3	A4

PERMELIKAN SIKLA DREHENDAK  
SEBELUM ATAU PADA 02 FEB 2014

PETUNJUK  
# : Ubat ini akan diambarka mengikut 80%  
NO. BOKS: 1700 (80% BOKS) No. 804  
A1: Gandar 1, A2: Gandar 2, A3: Gandar 3, A4: Gandar 4  
L: 100, R: 100, 1: Imbalance, P: Brake Tension

\*\* PUSPA /04-JAN-2014 /13:38:13 /508551/34/LR0 BEAT 4/LR0 BEAT 4/259815/111488551367 \*\*\*\*\*

PERHATIAN UNTUK PEMILIK  
TARIKH PEMERIKSAAN SAH BERKESHA

04-JUL-2014  
8:08 AM

DRB-HICOM



Product: Bionas Bio-Booster Tablet

Emission Test on Commercial Bus

Before: 70%

After : 4%



## Test result in the Philippines with ZERO EMISSION, using Bionas B30(M) Bio-Petrol.

### PERFORMANCE TESTING OF BIOFUEL BIONAS PRODUCTS

#### TESTIMONIAL FORM

Product's Name : M30 BIO PETROL  
Date : January 29, 2014  
Driver's Name : Jessie M. Ticon  
Vehicle ID : 0287  
Model : Barako Kawasaki  
Type of Engine : Motor - Kawasaki  
Testimonial Ref: Number : test bionas 01/30/2014

#### OBSERVATION DATA:

NO.	PARAMETERS	INITIAL	AFTER	REMARKS
1	MILEAGE(KM)			
2	FUEL QUANTITY (L)	3 liters		
3	EMISSIONS (observation)	0.20	0.00	100% Emission Reduction

Before  
20;2/01/24 21:28  
HC Ppm 3164  
CO % 0.20  
CO<sub>2</sub> % 7.0  
O<sub>2</sub> % 11.2  
NO Ppm 1  
λ 1.64  
RPM 0  
T oil 37.1

\*\*\*\*\*  
20;2/01/24 21:28  
HC Ppm 3164  
CO % 0.20  
CO<sub>2</sub> % 7.0  
O<sub>2</sub> % 11.2  
NO Ppm 1  
λ 1.64  
RPM 0  
T oil 37.1  
\*\*\*\*\*

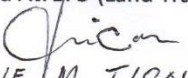
After  
20;2/01/24 23:12  
HC Ppm 42  
CO % 0.00  
CO<sub>2</sub> % 0.0  
O<sub>2</sub> % 20.7  
NO Ppm 0  
λ 0.00  
RPM 0  
T oil 36.1

\*\*\*\*\*  
20;2/01/24 23:12  
HC Ppm 42  
CO % 0.00  
CO<sub>2</sub> % 0.0  
O<sub>2</sub> % 20.7  
NO Ppm 0  
λ 0.00  
RPM 0  
T oil 36.1  
\*\*\*\*\*

#### COMMENTS:

I am Jessie M. Ticon a tricycle driver. The product of the BIONAS Company is the best. 100% zero (0) carbon result from the emission test. Thank you so much to the BIONAS Company.

Conducted At: LTO (Land Transportation Office), Tagbilaran City, Bohol, Philippines

  
JESSIE M. TICON  
Signature over Printed Name



# Certificate of Analysis on Bionas Bio-Booster Tablet



## NANOC SDN BHD (659613-D)

No. 78 Jalan Nova U5/N, Seksyen U5, Subang Bestari,  
40150 Shah Alam, Selangor, MALAYSIA  
Tel No : +603-7832 2011 Fax No : +603-7832 2311  
Email: our.contact@nanoc.com.my



MS ISO/IEC 17025  
TESTING  
SAMM NO. 413

### CERTIFICATE OF ANALYSIS

**Our Reference** : NC/14/O&G/PET/TRI/325/B1(1-2)  
**Page** : 1 of 2  
**Customer Address** : BATC DEVELOPMENT BHD  
60-1, Jalan Usahawan 7  
Wangsa Biz Avenue  
Setapak, 53300 Kuala Lumpur  
**Tel No.** : 03-4142 2218  
**Fax No.** : 03-4142 2208  
**Attention To** : Ms. Azlina  
**Sample Description** : 1 Oil Samples  
**Sampling Date** : 29/05/2014  
**Sample Marking** : Oil  
**Laboratory ID** : NC/14/O&G/PET/TRI/325/B1(2)  
**Date Received** : 29/05/2014  
**Date Completed** : 27/06/2014

Sample 2 : Bionas Bio-Booster Tablet in Petrol Ron 95

No.	Test	Method	Units	Results	Quality Specification
				Sample 2 : Bionas Bio-Booster Tablet in Petrol Ron 95	Min/Max Limit
1	#Copper Corrosion	ASTM D 130	-	1a	N/A
3	#Sulphur	In House by XRF Method	wt %	ND (< 0.01)	N/A
4	#Lead, Pb	ASTM D5185	ppm	4.04	N/A
5	#Flash Point	ASTM D93	°C	38	N/A
6	#Density @ 15°C	In House by Gravimetric Method	g/ml	0.7652	N/A
7	#Pour Point	ASTM D97	°C	-27	N/A

**Remark: -**

ASTM : American Society For Testing and Materials

#Test Method :Not accredited

Approved by

Name: Junaitun Alfahim Jaafar

Department : Laboratory

Date: 27 June 2014

The above analysis is based solely on the sample submitted by customer.

The certificate shall not be reproduced except in full without the written approval of the laboratory.

End of Report



# Certificate of Analysis on Bionas SuperLube Additive



## NANOC SDN BHD (659613-D)

No. 78 Jalan Nova U5/N, Seksyen U5, Subang Bestari,  
40150 Shah Alam, Selangor, MALAYSIA  
Tel No : +603-7832 2011 Fax No : +603-7832 2311  
Email: our.contact@nanoc.com.my



### CERTIFICATE OF ANALYSIS

**Our Reference** : NC/14/O&G/PET/TRI/325/B1(1-2)  
**Page** : 1 of 2  
**Customer Address** : BATC DEVELOPMENT BHD  
60-1, Jalan Usahawan 7  
Wangsa Biz Avenue  
Setapak, 53300 Kuala Lumpur  
**Tel No.** : 03-4142 2218  
**Fax No.** : 03-4142 2208  
**Attention To** : Ms. Azlina  
**Sample Description** : 1 Oil Samples  
**Sampling Date** : 29/05/2014  
**Sample Marking** : Oil  
**Laboratory ID** : NC/14/O&G/PET/TRI/325/B1(1)  
**Date Received** : 29/05/2014  
**Date Completed** : 27/06/2014

Sample 1 : Bionas Superlube Additive

No.	Test	Method	Units	Results	Quality Specification
				Sample 1 : Bionas Superlube Additive	Min/Max Limit
1	#Copper Corrosion	ASTM D 130	-	1a	N/A
2	#Rust Test:	ASTM D 665	PASS/FAIL		
	Distilled Water			PASS	N/A
	Sea Water			PASS	N/A
3	#Kinematic Viscosity @ 40°C	ASTM D445	cSt	84.56	N/A
4	#Kinematic Viscosity @ 100°C	ASTM D445	cSt	8.75	N/A
5	#Viscosity Index	ASTM D2270	-	72.00	N/A
6	#Total Acid Number	ASTM D664	mgKOH/g	0.66	N/A
7	#Total Base Number	ASTM D2896	mgKOH/g	3.21	N/A

Remark: -

ASTM : American Society For Testing and Materials

#Test Method : Not accredited

Approved by

Name: Junaitun Alfarahim Jaafar  
Department : Laboratory  
Date: 27 June 2014

The above analysis is based solely on the sample submitted by customer.

The certificate shall not be reproduced except in full without the written approval of the laboratory.

Continue



Tests conducted by Lloyd Aereo Boliviano S.A., Bolivia on Bionas Bio-Jet Fuel with 22% savings on Jetfuel consumption.



### **Test on Boeing 727-200**

22% savings on fuel consumption

75% lower vibration

85% emission reduction

12 °C lower engine oil temperature



**LLOYD AEREO BOLIVIANO S.A.**

GGCBB/0009/SI00/14

### PRUEBAS REALIZADAS PARA LA EMPRESA "BIONAS"

CB 21-05-2014-hr 14,00-CBB-  
Banco de Prueba de corrida de Motores  
Prueba motor Aeronave 727-100  
Motor P&W JT8D-9A  
Serial Number 654908  
Prueba 1 Fuel JP1 Normal

Temp.26 °C.....P/P 1,79  
IDLE.....  
N1.....32.....87  
EGT.....370.....460  
N2.....56.....91,5  
F/F.....800.....5100  
Oil Temp.....99.....72  
Oil Press ....46.....48

CB 21-05-2014-hr 15,00-CBB-  
Banco de Prueba de corrida de Motores  
Prueba motor Aeronave 727-100  
Motor P&W JT8D-9A  
Serial Number 654908  
Prueba 2 Fuel JP1 con aditivo BIONAS jet fuel

Temp.26 °C.....P/P 1,79  
IDLE.....  
N1.....32,5.....88  
EGT.....368.....451  
N2.....56.....92  
F/F.....800.....5000  
Oil Temp.....99.....60  
Oil Press ....46.....48

**Nota.-** Solo se corrió el motor en Prueba de IDLE y Potencia Parcial.

#### Personas Responsables:

Tec. Freddy Mendoza Argote  
Jefe Dpto. Mantenimiento

Tec. Osvaldo Muñoz Valdivia  
Jefe División Motores

Cochabamba, 21 de mayo del 2014

DIRECTORIO EJECUTIVO  
GERENCIA GENERAL

Ax. Guillermo Kytman # O-1691  
Casilla 132  
SITA: CBBGGLB  
Tells.: (591) (4) 425-1270/425-0736  
Fax: (591) (4) 425-0766  
Cochabamba - Bolivia



cc: MM, GG, MO, File, Cron

82609992



# Super Bio-jetfuel Test Report by Refinacion, Bolivia



YPFB Refinación SA		INFORME DE ANALISIS RG-0006-B-PG-3-LAB-0001		
PRODUCTO: BIONAS SUPER BIO-JET FUEL PROCEDENCIA: LAB FECHA DE MUESTREO: 2014-06-17 / 00:00 REFERENCIA: RCBA-GDV MUESTRA:				
			Nº: 2730	
INFORME DE ANALISIS RG-LAB-0006-A			ANEXO A PG-3-LAB-0009	
Nº	PRUEBA	METODO	UNIDAD	RESULTADO
<b>Muestra de Avión</b>				
1	Estabilidad térmica			
	Caída de presión en el filtro	ASTM D 3241	mmHg	1
	Depósitos en precalentador	ASTM D 3241	Código	<1
<b>Muestra Tanque Banco de Pruebas</b>				
2	Estabilidad térmica			
	Caída de presión en el filtro	ASTM D 3241	mmHg	1
	Depósitos en precalentador	ASTM D 3241	Código	<1
<b>OBSERVACIONES:</b>				
<div></div>				
Nº	PRUEBA	METODO	UNIDAD	RESULTADO
Cochabamba, 25 de junio de 2014				
				
Susana Gareca O. Analista		Pág. 1 de 1		
Laboratorio Refinería "Gualberto Villarroel"		Av. Petrolera km. 6 Telf. (591)4 4762300 Cochabamba - Bolivia		



Tests conducted by Makassar State University, Makassar, Indonesia  
on Bionas Bio-Booster Tablet with 20-30% savings on fuel  
consumption.

**UNIVERSITAS NEGERI MAKASSAR**  
**TEST REPORT FOR BIONAS TABLET**

Specification	1		2		3		4	
Additive Product	Bionas Tablet		Bionas Tablet		Bionas Tablet		Bionas Tablet	
Inspection Date	1/20/2015		1/31/2015		2/7/2015		2/24/2015	
Type of Engine	Diesel Engine		Diesel Engine		Gasoline Engine		Gasoline Engine	
Engine Capacity	2800 CC		2500 CC		1500 CC		1500 CC	
Type of Pump	Injection pump inline		-		-		-	
Type of Governor	Governor Vacuum		-		-		-	
Fuel System	-		Common rial		Carburetor		Electronic Fuel Injection (EFI)	
Condition	car work without extra load		Long Distance Drive		car work without extra load		car work without extra load	
Inspection Items	Solar	Solar +	Solar	Solar +	Premium	Premium +	Premium	Premium +
	(Diesel Fuel)	Bionas Tablet	(Diesel Fuel)	Bionas Tablet	(Gasoline Fuel)	Bionas Tablet	(Gasoline Fuel)	Bionas Tablet
Fuel Consumption	194 km= 14 L	194 km=14 L		Saving 20 -30%		Same without Bionas Tablet		Saving 20 -30%
Power	-	+	-	+	-	+	-	+
Acceleration	-	+	-	+	-	+	-	+
Emission/Smoke	50%	18 - 37%	+	-	+	-	+	-
Engine Sound	+	-	+	-	+	-	+	-

Note:

**A. Inspection result rest**

- = Decline
- + = Increase

**B. Conclusion**

1. For diesel engine fuel consumption efficiency, it needs a treatment in the injection pump (manual)
2. For fuel system with carburetor, fuel consumption is the same without using bionas tablet.

Makassar, 31<sup>st</sup> March 2015  
Head of Performance Test  
  
Haruna HL  
Expert of Automotive Engineering



Tests conducted by Makassar State University, Makassar, Indonesia  
on Bionas Super Bio-Diesel 20-30% savings on fuel consumption.

**UNIVERSITAS NEGERI MAKASSAR**  
**TEST REPORT FOR BIONAS SUPER BIODIESEL ADDITIVE**

Specification	1		2	
Additive Product	Super Bio Diesel		Super Bio Diesel	
Inspection Date	2/13/2015		2/15/2015	
Type of Engine	Diesel Engine		Diesel Engine/Heavy Duty	
Engine Capacity	2800 CC		4000 CC	
Type of Pump	Injection pump inline		Injection pump inline	
Type of Governor	Governor Vacuum		Industrial	
Fuel System	-		-	
Condition	car work with load (Climbing)		Constant	
Inspection Items	Solar (Diesel Fuel)	Solar + Super Bio Diesel	Solar (Diesel Fuel)	Solar + Super Bio Diesel
Fuel Consumption	150 km= 14 L	150 km=10 L	17L/hour	14L/hour
Power	-	+	-	Same without Super Bio Diesel
Acceleration	-	+	-	+
Emission/Smoke	+	-	+	-
Engine Sound	+	-	+	-

Note:

**A. Inspection result rest**

- = Decline

+ = Increase

**B. Conclusions**

1. For diesel engine/heavy equipment, fuel consumption is more efficient,  
but the power of engine is the same without using super bio diesel additive

Makassar, 3<sup>rd</sup> March 2015

Head of Performance Test,

  
Haruna HL.

Expert of Automotive Engineering



# BIONAS ACTIVITIES 2016 - 2017



Starting with Malaysia 9 years ago, Bionas biofuel products today are sold in more than 50 countries around the world. The latest products registration with the U.S. Environment Protection Agency (EPA) has also led to Bionas opening an operations office in the United States and sales are currently in 5 different U.S. States.



**BIONAS AROUND THE WORLD**

- |                 |                  |                   |                  |
|-----------------|------------------|-------------------|------------------|
| 1. Malaysia     | 15. Bangladesh   | 29. Germany       | 43. Kenya        |
| 2. Indonesia    | 16. Egypt        | 30. France        | 44. Nigeria      |
| 3. Philippines  | 17. Turkey       | 31. Poland        | 45. Ghana        |
| 4. Thailand     | 18. Iran         | 32. United States | 46. Ethiopia     |
| 5. Myanmar      | 19. Saudi Arabia | 33. Chile         | 47. Nicaragua    |
| 6. Vietnam      | 20. Qatar        | 34. Peru          | 48. Guatemala    |
| 7. Cambodia     | 21. Kuwait       | 35. Ecuador       | 49. Honduras     |
| 8. Singapore    | 22. Bahrain      | 36. Brazil        | 50. Chad         |
| 9. Brunei       | 23. UAE          | 37. Panama        | 51. Somalia      |
| 10. Hong Kong   | 24. U.K          | 38. Paraguay      | 52. Ivory Coast  |
| 11. Taiwan      | 25. Belgium      | 39. Uruguay       | 53. Mali         |
| 12. China       | 26. Switzerland  | 40. Bolivia       | 54. Sierra Leone |
| 13. South Korea | 27. Canada       | 41. Sudan         | 55. Guinea       |
| 14. Pakistan    | 28. Austria      | 42. Tunisia       | 56. Uganda       |



## Waste To Energy Plant (WTE PLANT) Project Agreement



**Kuala Lumpur, Malaysia, 16 August 2016** - Signing of Agreement for "Engineering, Procurement, Construction & Commissioning of Waste To Energy Plant (EPCC WTE PLANT) for the State of Terengganu and Melaka with minimum capacity of 500 Ton per day".



## Launching of Jatropha Press Mill & Additive Processing Centre at Maguindanao, Philippines



**Maguindanao, Philippines, 20 August 2016** - Launching of Jatropha Press Mill and Additive Processing Centre at Datu Anggal Municipality, Maguindanao, attended by Assemblyman Sidik Amiril, Vice Mayor, Government Officials and Head of Cooperatives and Farmers. 1 million Jatropha trees have been planted in that areas since 6 months ago and expected to increase quickly after this launching.



# BIONAS ACTIVITIES



## Seminar, Product Demonstration and Testimonial at Cotabato City



**Cotabato City, Philippines, 21 August 2016** – Seminar, Product Demonstration and Testimonial presented to the Representatives of President Duterte, Assemblyman, Vice Mayor, Government Officials, Reporters from Media, Leaders of Community, Cooperatives and Potential Clients.

Speech of President Duterte was delivered by Department of Energy Sir Arwin L. Ardon. In his speech, Mr President is committed to support Bionas Philippines and Jatropha for the development of economic growth of the people in Mindanao.

## Waste To Energy Plant (WTE PLANT) Project Agreements/Contracts in Thailand



**Bangkok, Thailand, 2 September 2016** - Signing of Six (6) Agreements/Contracts for "Engineering, Procurement, Construction & Commissioning of Waste To Energy Plant (EPCC WTE PLANT) for 6 Districts in Thailand. The districts are Phaisali District, Huai Thap Than District, Muang Bungkhan District, Huai Krachao District, Muang Chaiyaphum District and Pha Mhok District.



## Waste To Energy Plant (WTE PLANT) Project Agreement



**Kuala Lumpur, Malaysia, 5 September 2016** - Signing of Agreement for "Engineering, Procurement, Construction & Commissioning of Waste To Energy Plant (EPCC WTE PLANT) for the State of Selangor and Negeri Sembilan with minimum capacity of 500 Ton per day".



## Bionas at National Environment Dialogue - The Role of Jatropha in Nigeria



**Abuja, Nigeria, 4-5 October 2016** - Bionas was invited by H.E Amina J. Mohammed, Honourable Minister of Environment, Nigeria, to make presentation and product demonstration at this event, which was attended by Ministers from other related Ministries, government officials from the State and Federal level, Nigeria National Petroleum Company, Central Bank of Nigeria, financial and research institutions and civil society as well as the United Nations Industrial Development Organization (UNIDO).



# BIONAS ACTIVITIES



## Meetings for Joint Collaboration with Central Bank of Nigeria (CBN) & Nigerian National Petroleum Corporation (NNPC)



**Abuja, Nigeria, 7 October 2016** - Meetings for Joint Collaboration with Acting Governor, Central Bank of Nigeria (CBN) and the Nigerian National Petroleum Corporation (NNPC). CBN has agreed for Joint Collaboration and will provide financial facilities to the smallholders, nurseries etc. under Bionas Jatropha Biofuel Program. NNPC has also agreed for Joint Collaboration and requested Bionas to issue Letter of Intent.

## World Energy Council Asia Regional Meeting



**Istanbul, Turkey, 8 October 2016** - The Asia Regional Meeting of the World Energy Council was held at Istanbul Congress Center, attended by Japan, Korea, China, India, Sri Lanka, Nepal and Philippines. Malaysia, Singapore and Mongolia have been introduced as new Members of the World Energy Council.

Malaysia Member Committee represented by its Chair and Secretary, Dato' Seri Mohd Safie M. Jaffri and Zurina Amnan respectively.

## The World Largest Energy Congress in Istanbul, Turkey.



**Istanbul, Turkey, 10 October 2016** - President Erdoğan & President Putin have addressed the World Energy Congress, the world largest energy event from 9th to 13th October 2016.



## Bionas Group CEO speaks at World Energy Congress in Istanbul



**Istanbul, Turkey, 11-12 October 2016** - Bionas Group CEO, Zurina Amnan was one of the panel speakers for 3 Sessions of the World Energy Congress. She was also invited to the World Energy Leaders' Summit 'CEO Roundtable', an exclusive event that gathered the Ministers, CEOs and special guests.

The 3 Sessions: 1. Next Generation Biofuels (Jatropha Biofuel Program), 2. Urban Innovation (Waste to Energy (WTE) Plant), 3. Future Energy Leaders (FEL-100 Congress) Post COP21 - Balancing Trilemma Objectives for Emerging Market (Bionas' technology and products contribute to the solutions for the World Energy Trilemma).



# BIONAS ACTIVITIES



**Roundtable Session on Waste Based Power Plant (Green Tech)  
organised by CIDB & MATRADE, supported by EXIM BANK,  
MALAYSIAN INC. & MALAYSIA MEMBER COMMITTEE OF THE  
WORLD ENERGY COUNCIL**



**Kuala Lumpur, Malaysia, 24 October 2016** - The Construction Industry Development Board Malaysia (CIDB) and the Malaysia External Trade Development Corporation (MATRADE) have organised the Roundtable Session on Waste Based Power Plant (Green Tech) Projects using Bio-Digester Technology by BATC Development Bhd.

Export-Import Bank of Malaysia Bhd (EXIM Bank), the Malaysian Inc. and the Malaysia Member Committee of the World Energy Council supported this event which was attended by selected Contractors and Consultants in Malaysia.



## Bionas Group CEO speaks at Africa Business Day



**Kuala Lumpur, Malaysia, 31 October 2016** - Bionas Group CEO, Zurina Amnan was one of the panel speakers at the Africa Business Day, attended by 500 delegations from African countries. This event is organized by Ministry of International Trade & Industry (MITI), Malaysia External Trade Development Corporation (MATRADE) and Malaysia Investment Development Authority (MIDA).



## Joint Venture Agreement for Somalia, Africa



**Kuala Lumpur, Malaysia, 4 November 2016** - Signing of Joint Venture Agreement for Jatropha Agro-politan Business Clusters made of Jatropha Plantation Program, Press Mill for Crude Jatropha Oil, Biomass Briquette and Pallet production, Additive and Biofuel production, Biofuel Gas Stations and supporting components of Residential, Commercial, Public Utilities, etc. in Somalia, Africa.



## Joint Venture Agreement for Sudan, Africa



**Kuala Lumpur, Malaysia, 7 November 2016** - Signing of Joint Venture Agreement for Jatropha Agro-politan Business Clusters made of Jatropha Plantation Program, Press Mill for Crude Jatropha Oil, Biomass Briquette and Pallet production, Additive and Biofuel production, Biofuel Gas Stations and supporting components of Residential, Commercial, Public Utilities, etc. in Sudan, Africa.



## Joint Venture Agreements for Mali and Ivory Coast, Africa



**Kuala Lumpur, Malaysia, 9 November 2016** - Signing of Joint Venture Agreements for Jatropha Agro-politan Business Clusters made of Jatropha Plantation Program, Press Mill for Crude Jatropha Oil, Biomass Briquette and Pallet production, Additive and Biofuel production, Biofuel Gas Stations and supporting components of Residential, Commercial, Public Utilities, etc. in Mali and Ivory Coast, Africa.



# BIONAS ACTIVITIES



## Joint Venture Agreement for Kenya, Africa



**Kuala Lumpur, Malaysia, 24 November 2016** - Signing of Joint Venture Agreement for Jatropha Agro-politan Business Clusters made of Jatropha Plantation Program, Press Mill for Crude Jatropha Oil, Biomass Briquette and Pallet production, Additive and Biofuel production, Biofuel Gas Stations and supporting components of Residential, Commercial, Public Utilities, etc. in Kenya. The signing was held at InterContinental Hotel Kuala Lumpur in front of 200 delegations from Kenya.



## Joint Venture Agreements for Guinea and Sierra Leone



**Kuala Lumpur, Malaysia, 16 December 2016** - Signing of Joint Venture Agreements for Jatropha Agro-politan Business Clusters made of Jatropha Plantation Program, Press Mill for Crude Jatropha Oil, Biomass Briquette and Pallet production, Additive and Biofuel production, Biofuel Gas Stations and supporting components of Residential, Commercial, Public Utilities, etc. in Guinea and Sierra Leone, Africa.



## Joint Venture Agreement for Brunei



**Kuala Lumpur, Malaysia, 23 December 2016** - Signing of Joint Venture Agreement for Processing, Blending, Storage, Marketing and Distribution of Bionas Biofuels and Clean Energy Products in Brunei.



## Joint Venture Agreement for Sudan, Africa



**Kuala Lumpur, Malaysia, 15 February 2017** - Signing of Joint Venture Agreement for Jatropha Agro-politan Business Clusters made of Jatropha Plantation Program, Press Mill for Crude Jatropha Oil, Biomass Briquette and Pallet production, Additive and Biofuel production, Biofuel Gas Stations and supporting components of Residential, Commercial, Public Utilities, etc. in Sudan, Africa.



## Joint Venture Agreement for Uganda, Africa



**Kuala Lumpur, Malaysia, 16 March 2017** - Signing of Joint Venture Agreement for Jatropha Agro-politan Business Clusters made of Jatropha Plantation Program, Press Mill for Crude Jatropha Oil, Biomass Briquette and Pallet production, Additive and Biofuel production, Biofuel Gas Stations and supporting components of Residential, Commercial, Public Utilities, etc. in Uganda, Africa.



## Joint Venture Agreement for Egypt



**Kuala Lumpur, Malaysia, 11 April 2017** - Signing of Joint Venture Agreement for Jatropha Agro-politan Business Clusters made of Jatropha Plantation Program, Press Mill for Crude Jatropha Oil, Biomass Briquette and Pallet production, Additive and Biofuel production, Biofuel Gas Stations and supporting components of Residential, Commercial, Public Utilities, etc. in Egypt.



## Centre of Excellence in Biofuels and Waste to Energy (WTE) Technologies in Uganda, Africa



**Mbale, Uganda, 20 April 2017** - Signing with Islamic University in Uganda (IUIU) for the setting up of the Centre of Excellence (Train the Trainers Program) focusing in Biofuels and Waste to Energy (WTE) Technologies. IUIU represented by Rector, Dr. Ahmad Kawesa Sengendo and Vice Rector Academic Affairs, Dr Ismail Simbwa Gyangenda.



## Waste to Energy Plant (WTE PLANT) 500MT Garbage/Day in Mbale City, Uganda



**Mbale, Uganda, 20 April 2017** - Signing with Mbale Municipal Council for Engineering, Procurement, Construction & Commissioning of Waste To Energy Plant (EPCC WTE PLANT) 500MT Garbage/Day at Mbale City, Uganda. Mbale Municipal Council represented by Mayor Mafabi Mutwalibi Zandya and his representative Mr Waniaye Khatuli Kenneth. The Islamic University in Uganda (IUIU) is also the party in the Agreement responsible to provide training to other Districts/Cities in Uganda and neighbouring countries.

## Joint Venture Agreement for Ethiopia, Africa



**Addis Ababa, Ethiopia, Africa, 23 April 2017** - Signing of Joint Venture Agreement for Jatropha Agro-politan Business Clusters made of Jatropha Plantation Program, Press Mill for Crude Jatropha Oil, Biomass Briquette and Pallet production, Additive and Biofuel production, Biofuel Gas Stations and supporting components of Residential, Commercial, Public Utilities, etc. in Ethiopia, Africa. The Signing witnessed by the top officials of Ministry of Environment Ethiopia.

## Signing with Minister of Environment, Sudan for the Jatropha Agro-politan Business Cluster Developments in Sudan Great Green Wall



**Khartoum, Sudan, 27th April 2017** - Signing with Minister of Environment, Physical Development and Natural Resources, Sudan for the developments of 44 Blocks Jatropha Agro-politan Business Cluster in Sudan Great Green Wall, witnessed by Malaysian Ambassador in Sudan and Malaysian delegation of investors, consultants and contractors.

## Signing with The Higher Council of Environment, Urban and Rural Promotion for Waste to Energy (WTE) Plant - 4000 Ton Garbage Per Day at Khartoum State, Sudan



**Khartoum, Sudan, 27th April 2017** - Signing with Under Secretary of the Higher Council of Environment, Urban and Rural Promotion, witnessed by H.E Khartoum State Minister for the Waste to Energy (WTE) Plant - 4000 Ton Garbage Per Day at Khartoum State. The Signing was held at Sudan Parliament in front of Members of Parliament with the presence of Malaysian Ambassador to Sudan and Malaysian delegation of investors, consultants and contractors.



# BIONAS ACTIVITIES



## Bionas at United Nations CTCN Regional Forum in Bali, Indonesia



**Bali, Indonesia, 25-28 April 2017** - Bionas Vice President, Product & Technology Development, Norazlina Aminuddin represented the Company at the Regional Forum for CTCN National Designated Entities (NDEs) in parallel with the Structured Dialogue of the Green Climate Fund (GCF).



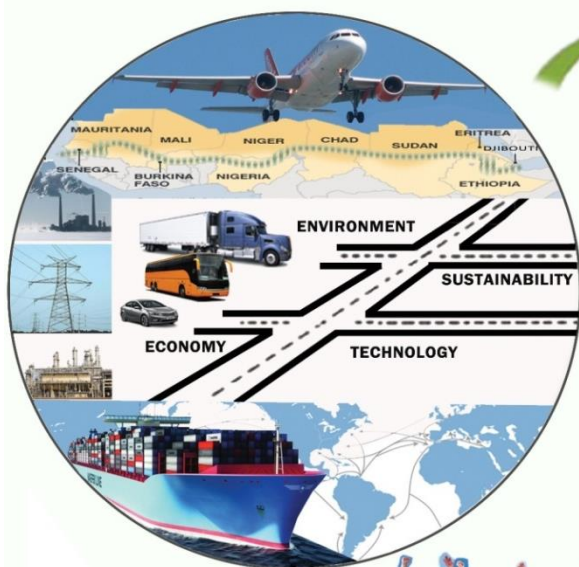
## Centre of Excellence in Biofuels and Waste to Energy (WTE) Technologies in Sudan, Africa



**Khartoum, Sudan, 28 April 2017** - Signing with Africa City of Technology (ACT) for the setting up of the Centre of Excellence (Train the Trainers Program) focusing in Biofuels and Waste to Energy (WTE) Technologies. ACT represented by Director General Dr. Osama Rayis and General Manager of Financial Investment & Promotion Eng. Khalid Aldaw. ACT is the National Research Centre under the flagship of the President of Republic of Sudan.



# BIONAS ACTION PLAN TOWARDS UNITED NATIONS CLIMATE CHANGE CONFERENCE (COP22) IN MARRAKECH, 2016



POVERTY ERADICATION	MULTI FEEDSTOCK	ALTERNATIVE FUEL	NO FURTHER INVESTMENT ON INFRASTRUCTURE	TECHNOLOGY TRANSFER	BENEFITS TO CONSUMERS	REAL TIME RESULTS & BEYOND
Human capital and socio-economic development for poverty eradication & food security	Non-food multifeedstock produced by greenbelt countries, Great Green Wall & Waste/Garbage	The raw material/renewable fuel to produce clean energy are easily accessible in many countries	Collaboration with oil & gas industries for the production of clean energy using their existing infrastructure and network	Nano – Emulsion, Polarization & Bio – digester Technology Transfer to all countries as solution to climate change	Consumers save up to 30% on daily fuel consumption and less maintenance. Clean energy for health and better life	Emission reduction up to 97% and savings on fuel consumption up to 30%



# WORLD GO GREEN ROADMAP



The pertaining issues in many countries in the world in relation to energy include:

1. The uncertainty and high price of fossil fuels due to tight oil produce/supply.
2. Oil dependencies from other nations.
3. The need to create new alternative energy sources.
4. The creation of new economy and creation of employment.

For these reasons, Bionas decided to capture the opportunity to offer reasonable solutions which will cover all of the pertaining issues in the world through a systematic expansion and competitive strategy – the Road Map to “World Go Green”.

- Human capital and socio-economic development for poverty eradication & food security
- Non-food multifeedstock produced by greenbelt countries, Great Green Wall & Waste/Garbage
- The raw material/ renewable fuel to produce clean energy are easily accessible in many countries
- Collaboration with oil & gas industries for the production of clean energy using their existing infrastructure and network
- Nano – Emulsion, Polarization & Bio – digester Technology Transfer to all countries as solution to climate change
- Consumers save up to 30% on daily fuel consumption and less maintenance. Clean energy for health and better life
- Emission reduction up to 97% and savings on fuel consumption up to 30%
- Achieving Global Clean Energy (Sustainability and Security)
- Practical Model to Lead Global Climate Change Efforts post COP21, Paris 2015



# WORLD ENERGY TRILEMMA

## ISSUED BY WORLD ENERGY COUNCIL



### ENVIRONMENTAL SUSTAINABILITY

The achievement of supply and demand-side energy efficiencies and the development of energy supply from renewable and other low-carbon sources.

### ENERGY SECURITY



### ENERGY SECURITY

The effective management of primary energy supply from domestic and external sources, the reliability of energy infrastructure, and the ability of participating energy companies to meet current and future demand.

**WORLD ENERGY TRILEMMA**  
Main Agenda in  
World Energy Congress  
Instabul 2016

### ENVIRONMENTAL SUSTAINABILITY

### ENERGY EQUITY

### ENERGY EQUITY

The accessibility and affordability of energy supply across the population.



# SOLUTION TO WORLD ENERGY TRILEMMA: BIONAS' NANO-EMULSION & POLARIZATION TECHNOLOGY

## ENVIRONMENTAL SUSTAINABILITY

- No deforestation.
- No Refinery producing carbon emission.
- Bionas B30 (M) Bio-Gasoline test with Zero % of CO.
- Bionas Bio-Tablet test with 94% reduced emission.
- Bionas Bio-Jetfuel test with 85% reduced emission.

## ENERGY SECURITY

- No further investment on Infrastructure. Use of existing blending & storage facilities.
- The raw materials are easily accessible in many countries.
- Technology Transfer is offered to all countries.
- Biofuel is sold at the same price of fossil fuels with higher profits to stakeholders.

## ENERGY SECURITY



- \* Earth to Engine – Integrated Business Model
- \* Excellent Track Records
- \* Successfully Commercialised Sustainable Jatropha Agronomy Programme
- \* Unique and Strong Commerciality in bio-refining
- \* Strong Buy-In From Oil Majors
- \* Increase Oil Independence – Reduced Import of Fossil Fuel
- \* Lower Fuel Cost With Higher Returns & Profits to Stakeholders
- \* Carbon Sinks and Reduce Tailpipe Emission

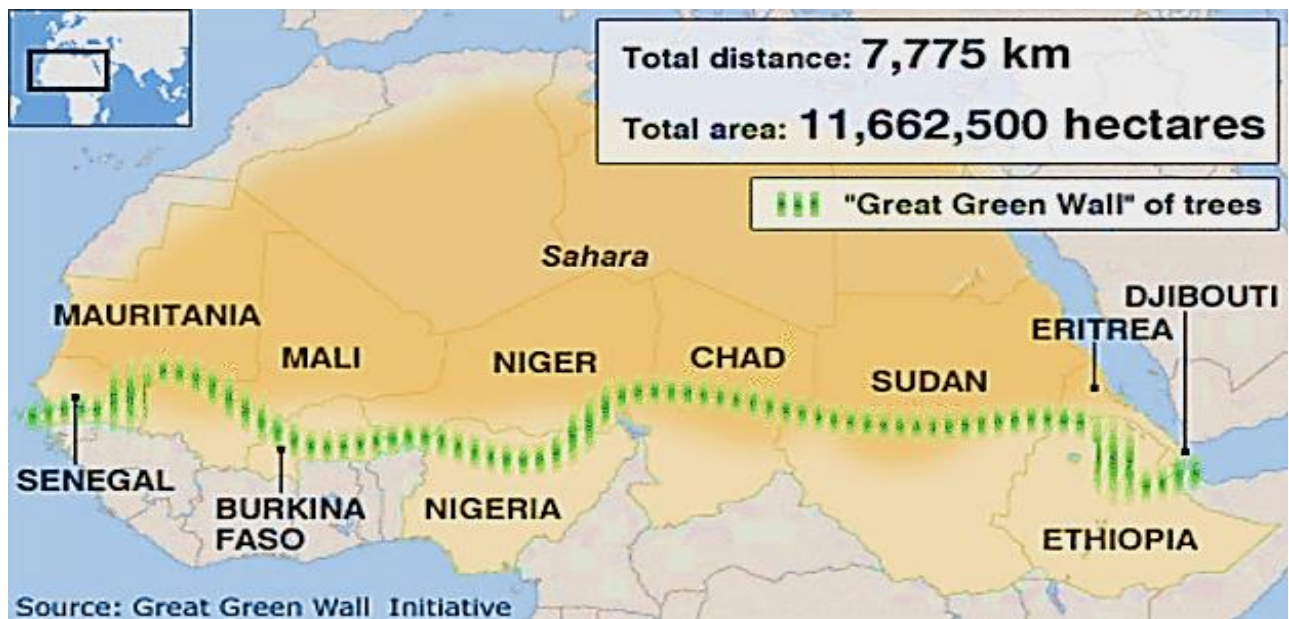
## ENVIRONMENTAL SUSTAINABILITY

## ENERGY EQUITY

## ENERGY EQUITY

- Jatropha planting program – FREE Seeds with Guaranteed Buy Back at Good Price → Sustainable Feedstock Supply.
- Press Mills and Additive Processing Centres installed at plantation areas → New Economic Growth In Rural Areas.
- Bionas Gas Stations installed near plantation areas → The accessibility and affordability of energy supply.

## The Great Green Wall of Africa's Initiative



The Great Green Wall for the Sahara and the Sahel Initiative (GGWSSI) is a pan-African programme launched in 2007 by the African Union (AU). Its goal is to reverse land degradation and desertification in the Sahel and Sahara, boost food security and support local communities to adapt to climate change.

In Africa's Sahel and Sahara region, fertile drylands are a vital source of life to millions. Not only is this precious natural asset the basis for food security and agricultural production, it also generates employment and mitigates social crises for the region's most poverty stricken and vulnerable people.

An estimated 83 percent of rural Sub-Saharan Africans are dependent on livelihoods from the land, yet 40 percent of Africa's land resources are currently degraded, driving poverty, hunger, unemployment, forced migration and conflict while amplifying climate risks such as drought and floods.

Eleven countries in the Sahel-Sahara region—Djibouti, Eritrea, Ethiopia, Sudan, Chad, Niger, Nigeria, Mali, Burkina Faso, Mauritania, and Senegal—have joined to combat land degradation and restore native plant life to the landscape.



## Nigeria's Intended Nationally Determined Contribution

Aspect	
Type of objective	Reduction from Business as Usual (BAU)
Target year	2030
Implementation period	2015-2030
Base data period	2010-2014
Summary objective	Economic and social development: grow economy 5% per year, improve standard of living, electricity access for all
Unconditional and conditional mitigation objectives	20% unconditional 45% conditional
Key measures	<ul style="list-style-type: none"><li>• Work towards ending gas flaring by 2030</li><li>• Work towards Off-grid solar PV of 13GW (13,000MW)</li><li>• Efficient gas generators</li><li>• 2% per year energy efficiency (30% by 2030)</li><li>• Transport shift car to bus</li><li>• Improve electricity grid</li><li>• Climate smart agriculture and reforestation</li></ul>
Emissions per USD GDP	0.873 kg CO <sub>2</sub> e (2015) 0.491 kg CO <sub>2</sub> e (2030)
GDP per capita	2,950 (2014) 3,964 (2030)
Estimated emission per capita	Current: around 2 tonnes CO <sub>2</sub> e 2030 BAU: around 3.4 tonnes CO <sub>2</sub> e 2030 Conditional: around 2 tonnes CO <sub>2</sub> e
Global warming potentials used	IPCC Fourth Assessment Report
Cost estimate data	National Cost = \$142b: National Benefits = \$304b (World Bank report "Low Carbon Development Opportunities for Nigeria 2013")
Gases covered	CO <sub>2</sub> , N <sub>2</sub> O, CH <sub>4</sub>
Emissions as % of global total	<1% (2010)
Historical emission (1850-2010)	2,564.02 million tonnes

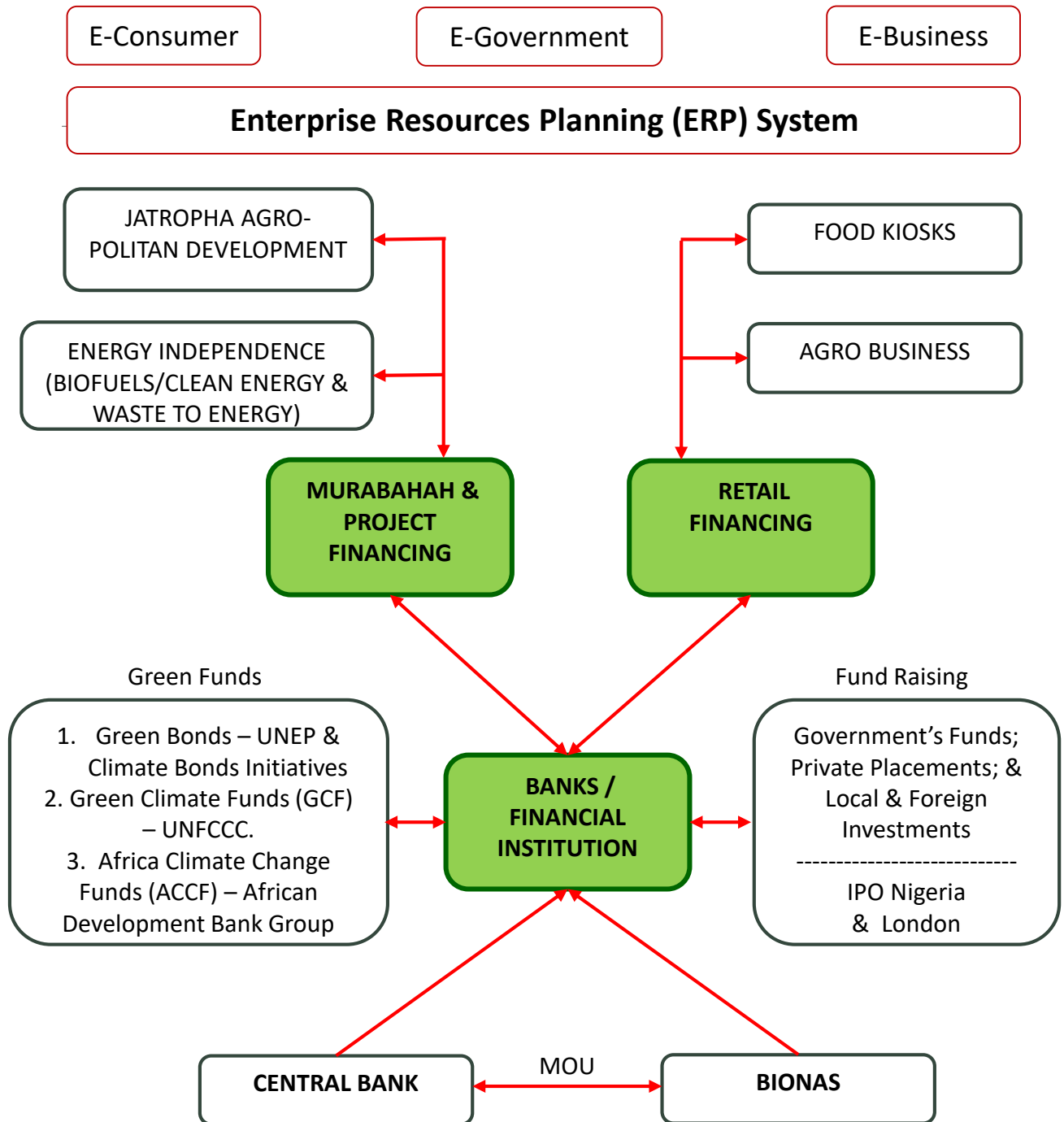


## Bionas' Plans for Nigeria's Indc

Aspect	
Type of objective	Roadmap to Nigeria Go Green
Target year	2022
Implementation period	2017 - 2022
Summary objective	Energy, economic and social development: reduced carbon emission and enforce biofuels policy efficiently, grow economy 5% per year, improve standard of living, electricity access for all
Key measures	<ul style="list-style-type: none"><li>• Climate smart agriculture and reforestation with Jatropha Curcas L.</li><li>• Work towards biofuels from Jatropha</li><li>• Work towards waste to energy by bio-digester, pyrolysis &amp; distillation</li><li>• Efficient gas generators</li><li>• Develop Green Cities, Green Sea Port City &amp; Green Airport City</li><li>• Target of holding global warming to well below 2°C</li></ul>
Biofuels Blending Mechanism	20% - 30% renewable fuel + 70% - 80% crude oil
Emissions Reduction Target	80% - 95%
Gases covered	CO <sub>x</sub> , NO <sub>x</sub> , SO <sub>x</sub> , CH <sub>4</sub>
Emissions as % of global total	<1% (2010)



## Energy & Food Security Program For Nigeria





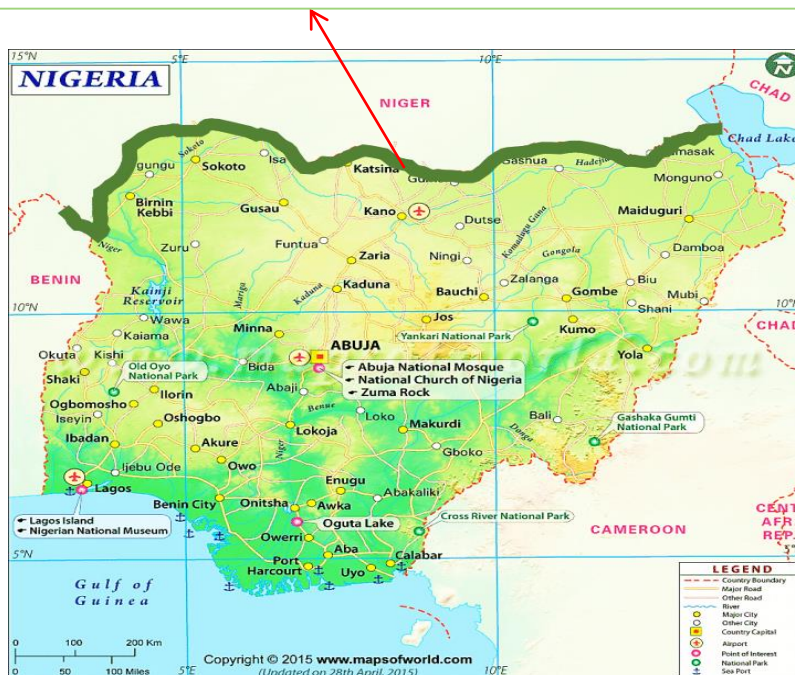
# WORLD CLEAN ENERGY HUB



## Justification on Nigeria Clean Energy Hub

- a) Desert encroachment and desertification
- b) More marginal and unproductive land
- c) Less rainfall
- d) High level of poverty
- e) Educational disadvantage
- f) High level of unemployment more especially youth and women
- g) Improve the livelihood
- h) Improve the security level
- i) Neighboring countries-Niger, Chad and Cameroun-Advantages in area of product marketing and pathway to establishing the Clean Energy Hub for Africa in Nigeria
- j) High probably of qualification for further UNFCCC/UNEP/GCF support and Clean Mechanism Development projects to proof evidence of carbon emission reduction efforts to earn carbon credits and additional project sponsorship.

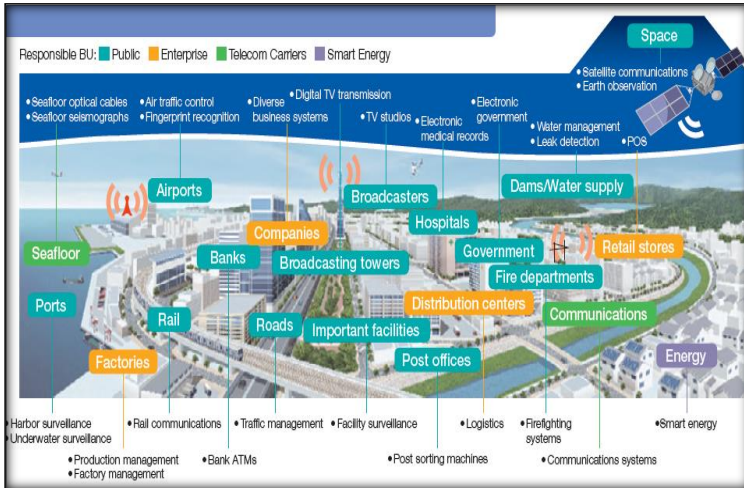
### Proposed Jatrophha Agro-Politan Development Business Cluster





# WORLD CLEAN ENERGY HUB

## NIGERIA - WORLD CLEAN ENERGY HUB Proposed Green Smart City And Sea Port City





## NIGERIA - WORLD CLEAN ENERGY HUB

### a) Green Cities Development, Policy & Mandatory Blending

#### 1. Jatropha Agro-politan Business Cluster Development/ Green Smart Cities:

- 1.1 Jatropha Plantation Program
- 1.2 Press Mill and Additive/Biofuel Production Plant
- 1.3 Jatropha Seedcake Briquette and Pallet Production Plant
- 1.4 Biofuel Gas Stations and Mobile Gas Stations
- 1.5 New Developments of Residential, Commercial, Hospital, School, Religious Centre etc.



#### 2. New Green Administrative City with new developments of:

- 2.1 New Administrative Center
- 2.2 New Presidential Palace
- 2.3 New Ministries Complex
- 2.4 New Parliament Complex
- 2.5 New Governors Complex

with mandatory requirements to use clean energy and renewable fuels.

1. B20 (J) BIO-PETROL
2. B20 (M) BIO-PETROL
3. B20 (J) BIO-DIESEL





## NIGERIA - WORLD CLEAN ENERGY HUB

### b) Green Sea Port City Development, Policy & Mandatory Blending

#### 3. New Green Sea Port City:

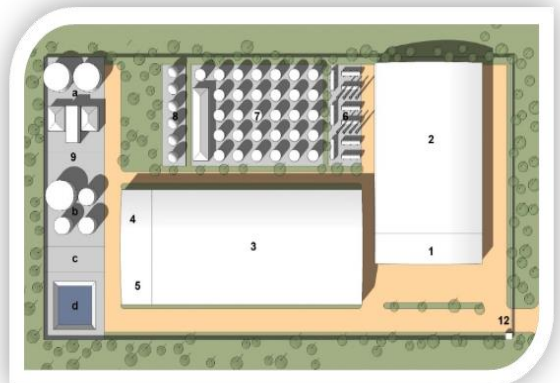
- 3.1 Main Seaport Terminals and Fuelling Stations
- 3.2 Biofuel Processing, Blending and Storage Infrastructures & Facilities
- 3.3 New Industrial Areas

- This will enable Nigeria to comply and enforce the International Maritime Organization (IMO), United Nations-Regulation 13 and Regulation 14 on NO<sub>x</sub> Emission Control Areas (NECA) and SO<sub>x</sub> Emission Control Area (SECA) through the use of Bionas B25 Bio-Heavy fuel as solution for global shipping lines to comply with NECA regulation.



#### 4. Waste to Energy (WTE) Plant:

- 4.1 WTE Plant capacity of 500 - 1000 Tons waste/day will be installed at selected Cities/States.





# WORLD CLEAN ENERGY HUB



## NIGERIA - WORLD CLEAN ENERGY HUB

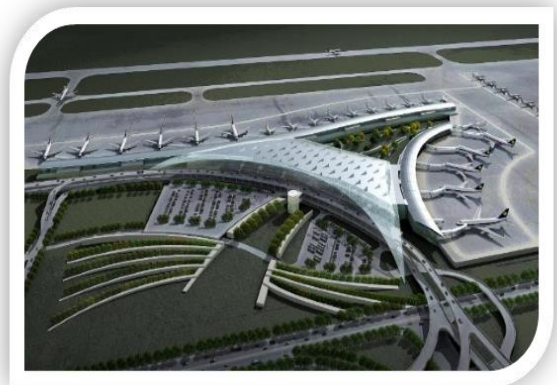
### c) Green Airport City Development, Policy & Mandatory Blending

#### 5. New Green Airport City at Lagos Airport:

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- 5.1 New airport terminals and fuelling stations
- 5.2 Bio-Jetfuel Processing, Blending and Storage Infrastructures & Facilities
- 5.3 New airport management building
- 5.4 New Hotels and Commercial Centres

- This will enable Nigeria to comply and enforce Carbon Offsetting Scheme For International Aviation (CORSIA) of the International Civil Aviation Organization (ICAO) and International Air Transport Association (IATA); and Intergovernmental Panel on Climate Change (IPCC)'s Regulations on carbon emission by aviation industry, through the use of Bionas Bio-Jetfuel as solution for airlines and aircrafts entering Nigeria's air space.





# WORLD CLEAN ENERGY HUB

## NIGERIA - WORLD CLEAN ENERGY HUB

### Proposed Master Plan In Jatropha Agro-politan Blocks of Nigerian GGW





## NIGERIA - WORLD CLEAN ENERGY HUB

### Proposed Development Components in Agro-politan Blocks of Nigerian GGW

	PARTICULARS	AGRO-POLITAN BLOCK	NIGERIAN GGW
			Length : 1,500 km Area : 22,500 km <sup>2</sup>
		Size: 15 km x 30 km Area: 450 km <sup>2</sup> / 45,000 ha	Size: 15 km x 1,500 km Area: 22, 500 km <sup>2</sup> (2,250,000 ha) Blocks : 50 units
1.	Employment Opportunities Created - Farmers (Jatropha Plantation) - Support	10,000 ppl <u>15,000 ppl</u> <u>25,000 ppl</u>	500,000 ppl <u>750,000 ppl</u> <u>1,250,000 ppl</u>
2.	Housing 2.1 Farmers (0.25 ha each) 2.2 Support	2,688 ha (6.0%) 5,000 units <u>7,500 units</u> <u>12,500 units</u>	1,393,021 ha (6.0%) 250,000 units <u>375,000 units</u> <u>625,000 units</u>
3.	Facilities - Central Area; Neighbourhood Center; Agro Industry Center	1,203 ha (2.7%)	60,125 ha (2.7%)
4.	Infrastructure & Amenities - Main Roads; Water Supply; Solid Waste Center; Waste Water Treatment Plant; Electricity; Telecommunication Center.	1,110 ha (2.5%)	55,500 ha (2.5%)
5.	Industry (External) - Processing & Blending Plant - Waste To Energy (WTE) Complex - Halal Hub & Industrial Park	125 ha	625 ha
6.	Workforce & Population - Farmers - Support  - Population (Estimated)	10,000 ppl <u>15,000 ppl</u> <u>25,000 ppl</u>  66,250 ppl	500,000 ppl <u>750,000 ppl</u> <u>1,250,000 ppl</u>  2,812,500 ppl



# WORLD CLEAN ENERGY HUB



## NIGERIA - WORLD CLEAN ENERGY HUB

### Proposed Jatropha Plantation

#### ☐ Jatropha Farmers

1 Block = 40,000 Ha Land

1 Family = 2 Farmers

1 Farmer = 4 Ha Land

1 block will have 10,000 Farmers to plant Jatropha.

#### ☐ Jatropha Trees

1 Ha = 2,000 trees

1 Block = 80,000,000 trees

#### ☐ Jatropha Fruit Yield

1 Ha = 500 kg/month fruit yield

1 Block = 20,000,000 kg/month fruit yield



# WORLD CLEAN ENERGY HUB



## NIGERIA - WORLD CLEAN ENERGY HUB Proposed Processing & Blending of Bio-additives in Jatropha Agro-politan Blocks

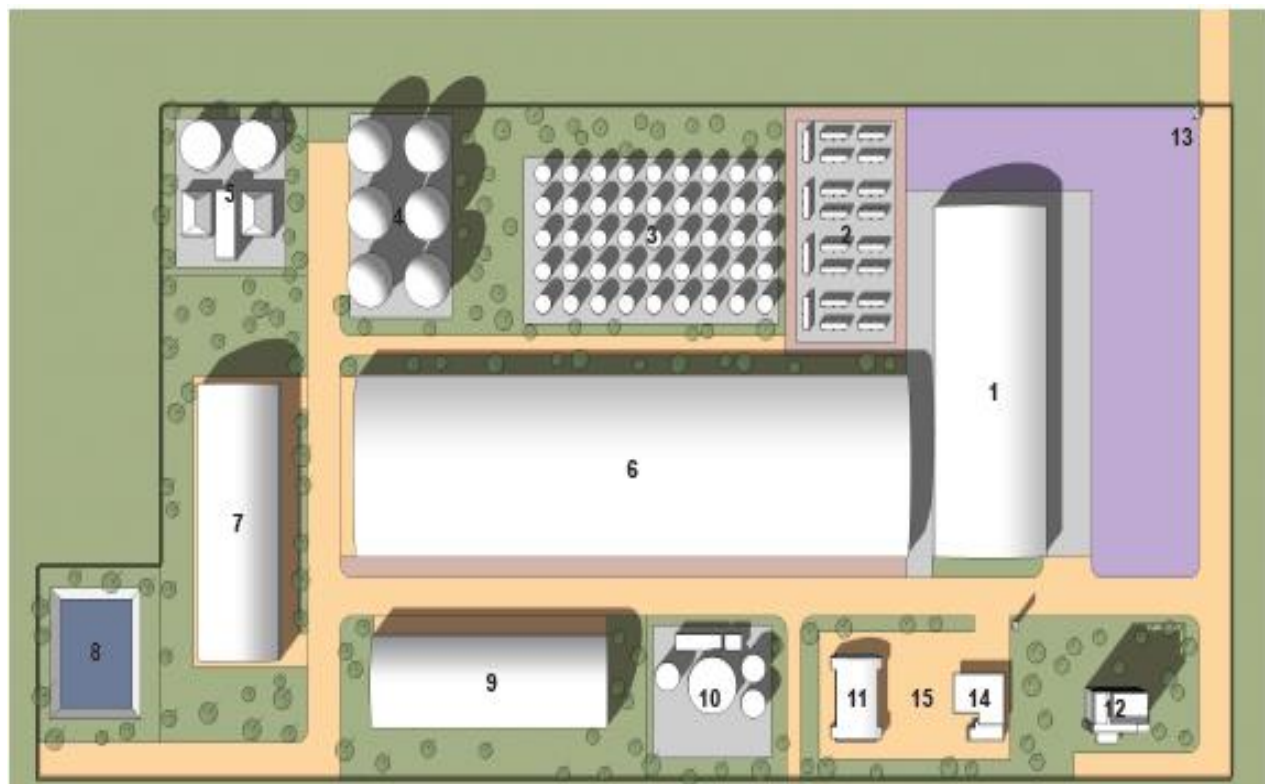


**Jatropha Bio-additives Processing and Blending Buildings**



# WORLD CLEAN ENERGY HUB

## NIGERIA - WORLD CLEAN ENERGY HUB Proposed Waste To Energy Plants in Jatropha Agro-politan Blocks



**Standard Waste To Energy Building/Complex**

Development Components
1. Tipping and Sorting Centre
2. Distillation Plant
3. Fermentation Plant
4. Biogas Storage Tank
5. Groundwater Filtration Plant
6. Processing Plant <ul style="list-style-type: none"><li>- Pyrolysis Plant</li><li>- Dewatering Plant</li><li>- Drying Plant</li><li>- Lab &amp; Maintenance Office</li></ul>

Development Components
7. Power Generation Plant
8. On-Site Detention Pond
9. Warehouse
10. Leachate Treatment Plant
11. Service Area & Canteen
12. Office
13. Guard House
14. Petrol Station
15. Parkings (Lorries)



# WORLD CLEAN ENERGY HUB

## NIGERIA - WORLD CLEAN ENERGY HUB

### Proposed Halal Hub Industrial Park in Jatropha Agro-politan Blocks



**Halal Hub Industrial Buildings**



# WORLD CLEAN ENERGY HUB

## NIGERIA - WORLD CLEAN ENERGY HUB

### Proposed Farmers Green Housing



**1 Farmer** = 0.25 hectare housing land area with husbandry farm  
(Cattle and Goat, Poultry, Fish, Vegetables and Fruits)

### Proposed Support Workers Green Housing





## NIGERIA - WORLD CLEAN ENERGY HUB

### Proposed Green Housing in Jatropha Agro-Politan Blocks

Each house will be equipped with furniture and furnished. Basic needs for living will be provided.

### FURNITURE & FURNISHING

1. FURNITURE	2. BED ROOM	3. KITCHEN	4. BATHROOM	5. OTHER (Options)
- Settee/Dining table (1)	- Single Bed (1)	- Gas Stove	- Shower head (1)	- Tricycle-Electric (1)
- Mats (2)	- Pillow (4)	- Cooking Utensil	- Stainless still Tap (3)	- Pot (1)
- Ceiling Fan (3)	- Bed Sheet (1)	- Dining Ware	- Pail 5 & 10 Litres (4)	
- Curtain (1)	- Blanket (1)	- Dining Table	- Toilet bowl	
- LED (6 Pcs.)	- Mattress (1)	- Refrigerator	- Toilet sink	
	- Mirror (2)	- Tray (2)		
	- Robe (1)	- Kettle (1)		
		- Tea set (1)		
		- Kitchen Sink		

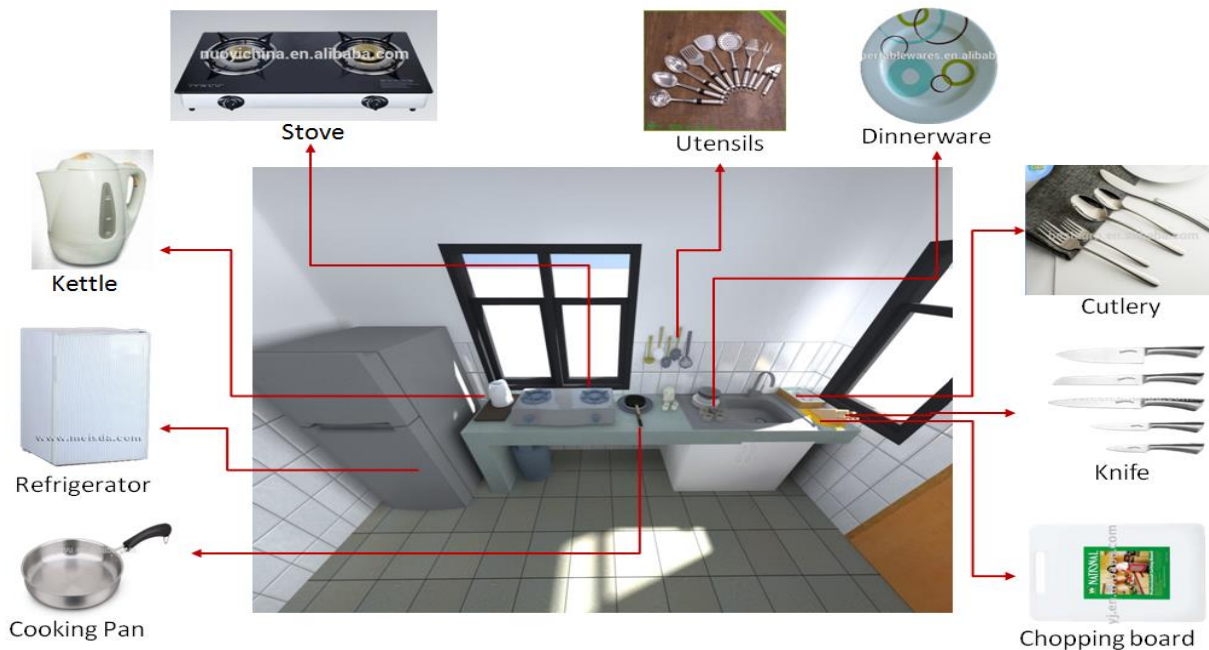


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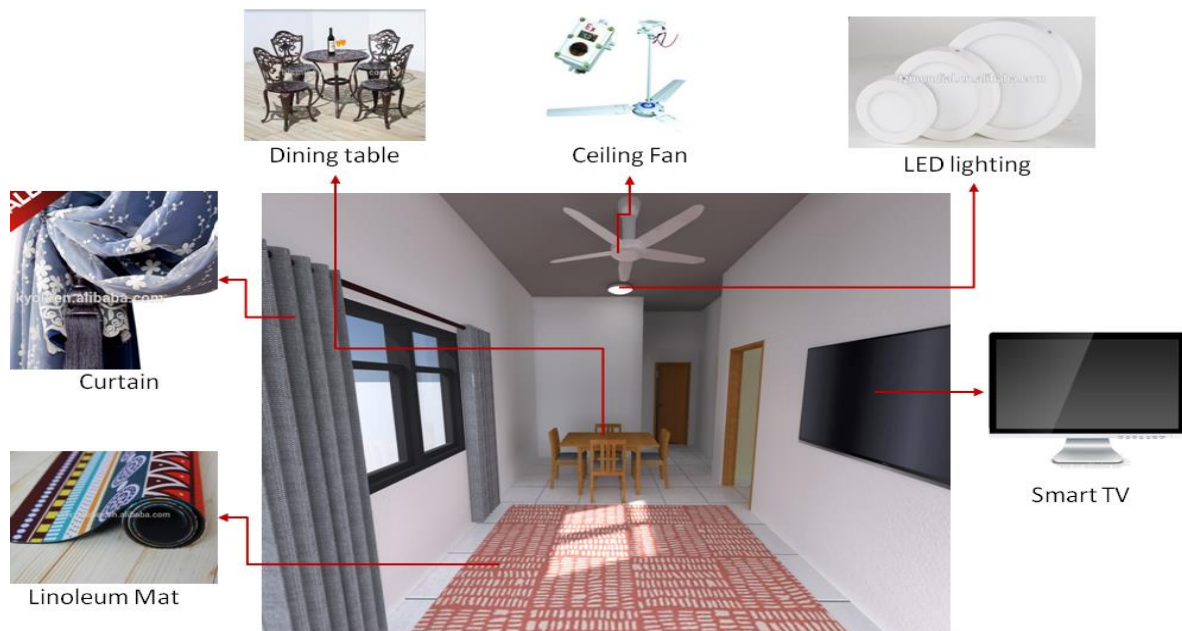
## NIGERIA - WORLD CLEAN ENERGY HUB

### Proposed Green Housing in Jatropha Agro-Politan Blocks

#### Kitchen



#### Living/Dining



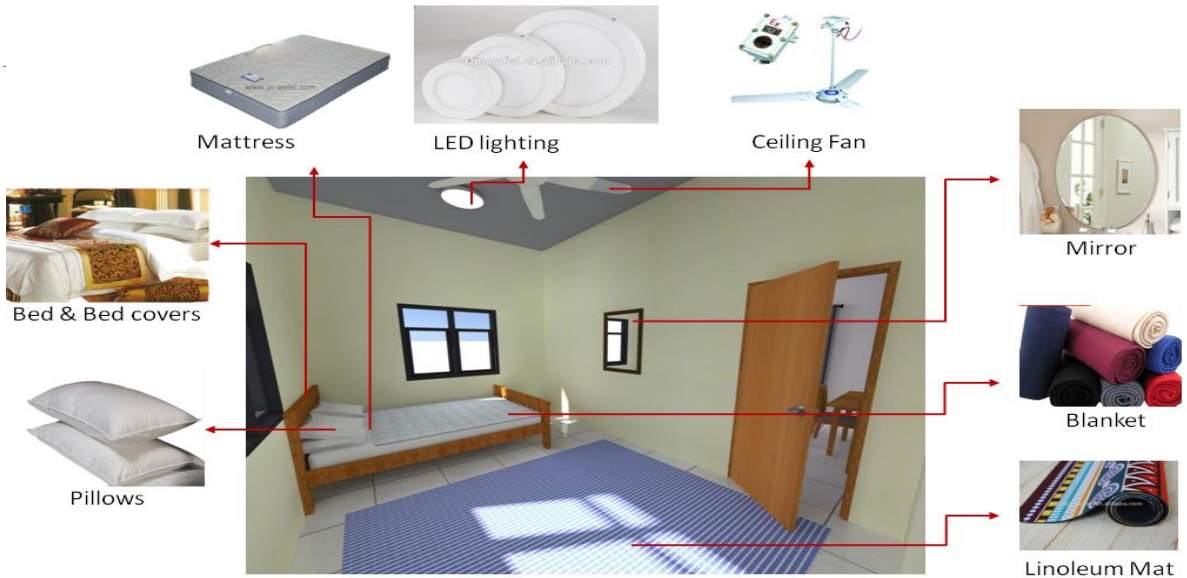


# WORLD CLEAN ENERGY HUB

## NIGERIA - WORLD CLEAN ENERGY HUB

### Proposed Green Housing in Jatropha Agro-Politan Blocks

#### Bedroom



#### Bathroom





## NIGERIA - WORLD CLEAN ENERGY HUB

### Proposed Ogoniland Cleanup – Oil Spills Waste



**Current Pictures of Oil Spills in Niger Delta**

#### ☐ **Problems:**

- OIL SPILLS – estimated at minimum 13 million barrel equals to 1,525 million litres or 1.525 million metric tons since 1958 (Source by Baird J., Oil's Shame in Africa, Newsweek)
- Dangerous concentrations of benzene
- Soil contamination more than 5 metres deep

#### ☐ **Solutions:**

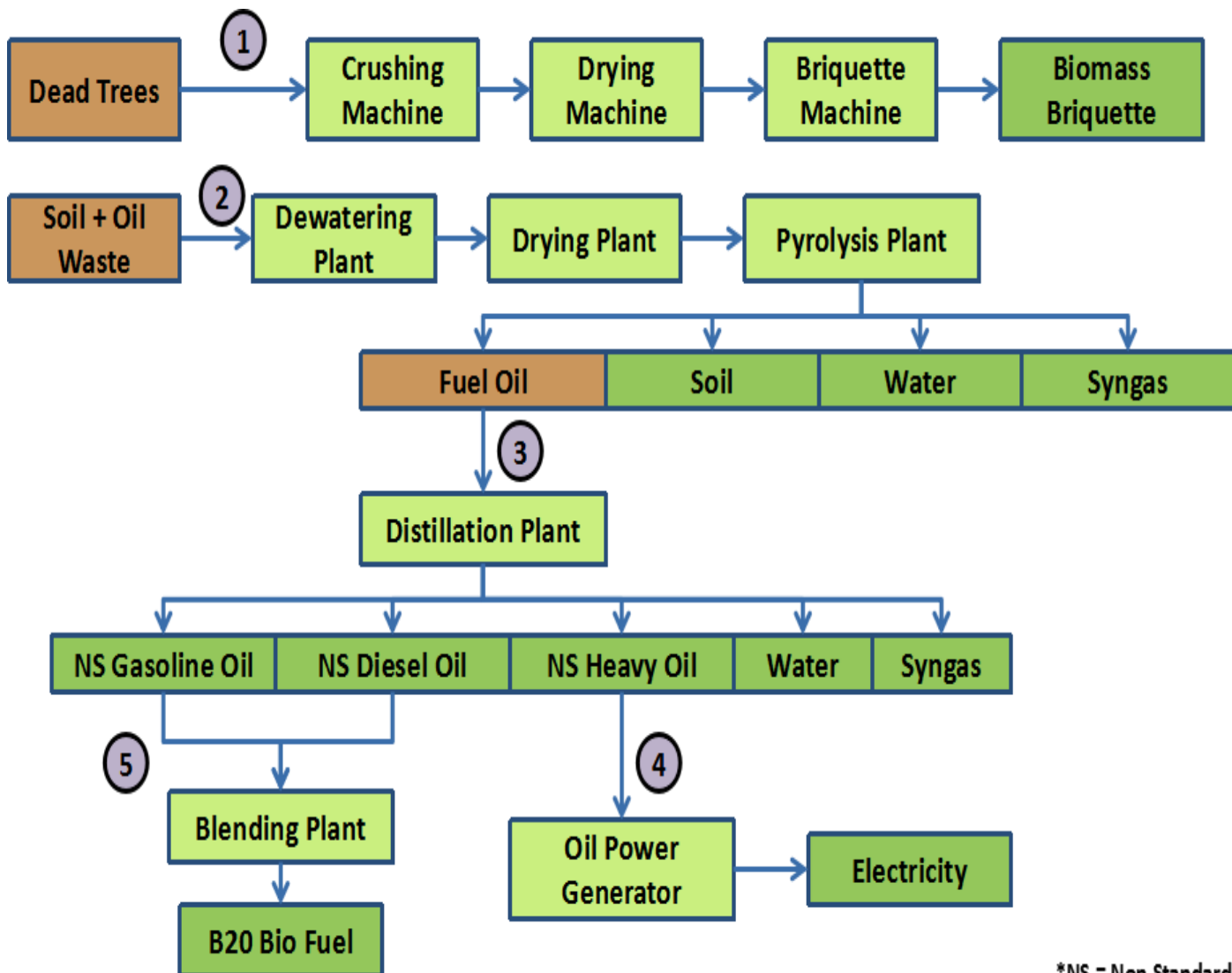
- To install Waste to Energy Complex, focus on oil recovery, treatment and convert it to electricity
- Capacity: 1,000 Tons per day for solid waste
- Capacity: 5,000 Tons per day for oil spills/liquid waste
- For 1.525 Million Tons of oil spills, it can be cleaned up within 305 days or 10 months.
- Clean water will be channelled back to the river and some will be treated further as drinking water



## NIGERIA - WORLD CLEAN ENERGY HUB

### Proposed Ogoniland Cleanup – Oil Spills Waste

#### Oil Spills Waste To Energy (Overview Process)



\*NS = Non Standard



## NIGERIA - WORLD CLEAN ENERGY HUB

### Proposed Technology Transfer via Centre of Excellence (CoE)

#### ❖ Vision & Mission:

- To share our expertise and experience in sustainable clean energy and biofuel; to produce professionals and experts in Nano-Emulsion and Polarization Technologies for biofuel industry and Bio-Digester Technology for Waste to Energy industry; to implement clean energy projects globally and to make climate action a reality.
- TARGET 500,000 professional expert chemists and engineers by 2025.

#### ❖ Objective:

- **Technology development and transfer**

Trainers/students will be exposed to Nano-Emulsion, Polarization, Bio-Digester, Pyrolysis and Distillation Technology and how it is applied to the production of biofuel, electricity and clean energy products.

- **Collaboration in innovation**

Students are encouraged to perform continuous research and development (R&D) to further enhance the existing technology.

- **Capacity building**

The establishment of the Industrial Centre of Excellence will be One Stop Centre for training of Jatropha plantation, press mill operation, biofuel production, waste to energy, marketing and distribution plan.

- **Knowledge sharing**

Bionas is committed to share the knowledge to the stakeholders (governments, private sectors and industry players) through seminar and short professional courses.



## NIGERIA - WORLD CLEAN ENERGY HUB

### Proposed Technology Transfer via Centre of Excellence (CoE)

#### ❖ Proposed Plan:

- **Signing of Agreement with local universities**

Signing of Partnership with local university or any centre/ organization selected by NNPC to joint collaborate in Research and Academic Programmes on Nano-Emulsion, Polarization technology and Waste to Energy and also the establishment of the Industrial Centre of Excellence.

- **Courses/Modules**

There are 9 courses/modules to be offered:

- |                             |                                       |
|-----------------------------|---------------------------------------|
| i. Agriculture              | v. Applied Chemistry                  |
| ii. Biofuel Engineering     | vi. Waste to Energy                   |
| iii. Mechanical Engineering | vii. Marketing                        |
| iv. Automotive Engineering  | viii. Environmental Laws and Policies |
|                             | ix. Corporate Social Responsibility   |

- **Duration**

Duration for each course/module is 2 months and each students compulsory to register minimum of 3 courses/modules.

- **Fee**

**USD 8,000.00** (for 3 courses/modules)

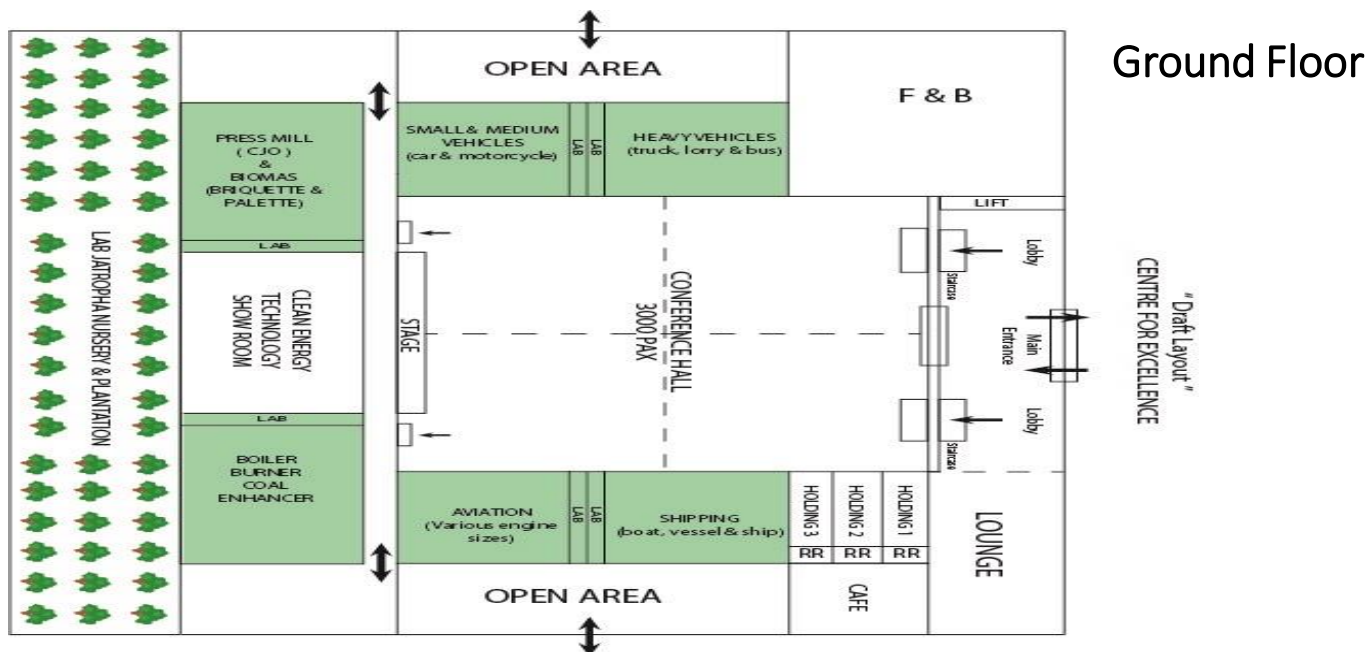


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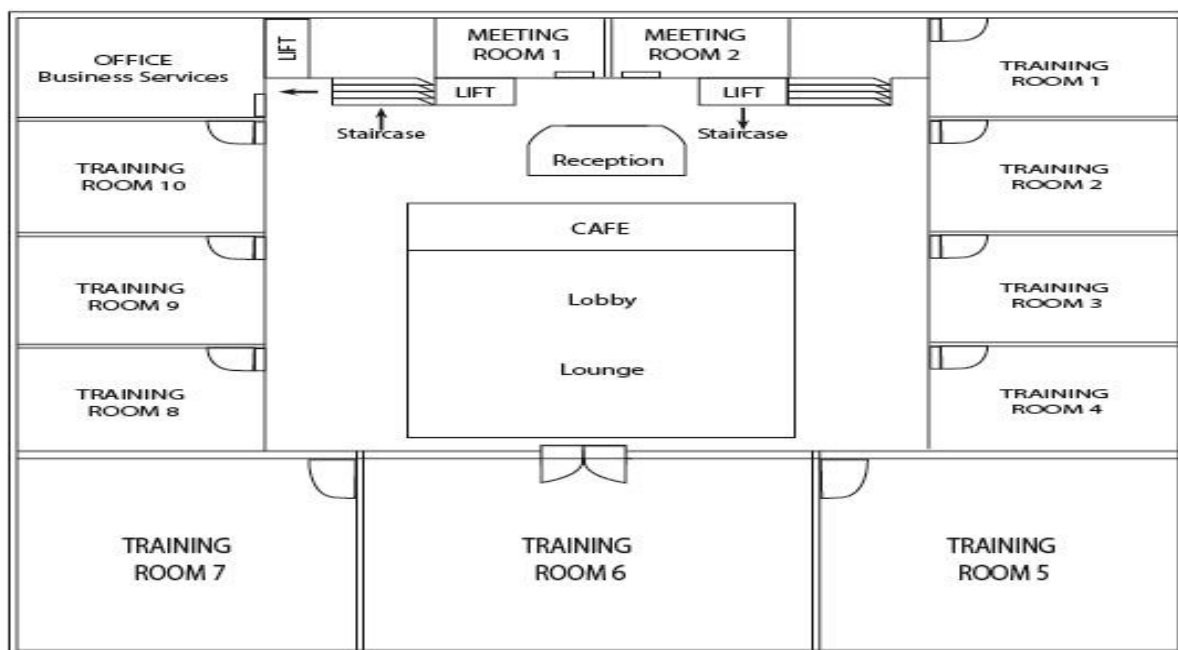
## NIGERIA - WORLD CLEAN ENERGY HUB

### Proposed Technology Transfer via Centre of Excellence (CoE)

#### ❖ Proposed Layout Plan:



#### 1<sup>st</sup> Floor





## NIGERIA - WORLD CLEAN ENERGY HUB

### Climate Change & Global Warming Mitigation

#### 1) Jatropha Plantation

##### \* Jatropha Trees Plantation for Nigerian GGW

1 Block	=	80 million trees ;	50 Blocks	=	4 billion trees
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∴ The NGGW will plant 4 billion Jatropha trees.

##### \* Carbon Emission Reduction

1 tree planted	=	10 kg / year carbon emission reduction
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∴ The NGGW will reduce 40 million MT / year carbon emission.

#### 2) Biofuels

B20 Bio-Diesel	=	20% Renewable Fuel + Bionas Additive and 80% Diesel
B20 Bio-Petrol	=	20% Renewable Fuel + Bionas Additive and 80% Petrol

∴ Reduce up to 95% carbon emission and savings on diesel & petrol consumption by 20%.



## NIGERIA - WORLD CLEAN ENERGY HUB

### Climate Change & Global Warming Mitigation

### 3) Waste-To-Energy

#### \* Waste Reduction / Landfill Reduction / Waste Treatment:

Reduce Waste	=	Reduce Landfill ;
Landfill	=	Contribute to 95% of the Green House Gases (GHG) emission, increased of methane gases emission, water pollution, odor and health risks

- ∴ The NGGW can reduce 90-95% of the GHG emission to the atmosphere, the health of exposed populations can be protected when the environment is clean with good water quality, sanitation and hygiene.

#### \* Green Technology:

Bio-digester, Pyrolysis and Distillation Technology	=	Environmental Friendly
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- ∴ No pollutant, no toxic and no residue releases thus reduce Green House Gases (GHG) and methane emission.

#### \* Clean and Renewable Energy Results:

Clean and renewable energy (electricity, heat and fuel) resulted from waste	=	Reduce fossil energy
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- ∴ The waste from our technology can produce electricity, carbon black, NS Diesel Oil, NS Petrol, Base Oil and metal. From our technology, GHG emission from landfill can be recycled to electricity and other products.




## Action Plans

1. Proposed Jatropha Agro-politan Business Clusters Development for:
  - i. Nigeria (50 Blocks)
  - ii. NNPC (13 Blocks)
  - iii. Sudan (44 Blocks)
  - iv. Ethiopia (17 Blocks)
  - v. Chad (29 Blocks)
  - vi. Mali (29 Blocks)
2. Proposed Ogoniland Cleanup (Oil Waste to Energy) for Niger Delta.
3. Proposed Waste-to-Energy (WTE) Project for:
  - i. Zaria City, Nigeria (1,000 MT/day)
  - ii. Khartoum State, Sudan (4,000 MT/day)
  - iii. Mbale City, Uganda (500 MT/day)
  - iv. Addis Ababa, Ethiopia (1,000 MT/day)




# BEHIND THE SUCCESS



'I believe in the laws of nature, we must give first before expecting anything.'

The world is desperate for climate change solution, just look at the continuous natural disasters and catastrophic around the world, who actually cares?'  
- DATO' SERI MOHD SAFI'E M. JAFFRI



'We must understand the need of the people, they are not capable to invest on anything but they have some lands for food crops. Give them the seeds, buy back at the right price, good price! Process the seeds in front of their eyes and produce the oil and additive locally for their benefits! This is the only way to bring them out of misery.'  
- ZURINA AMNAN