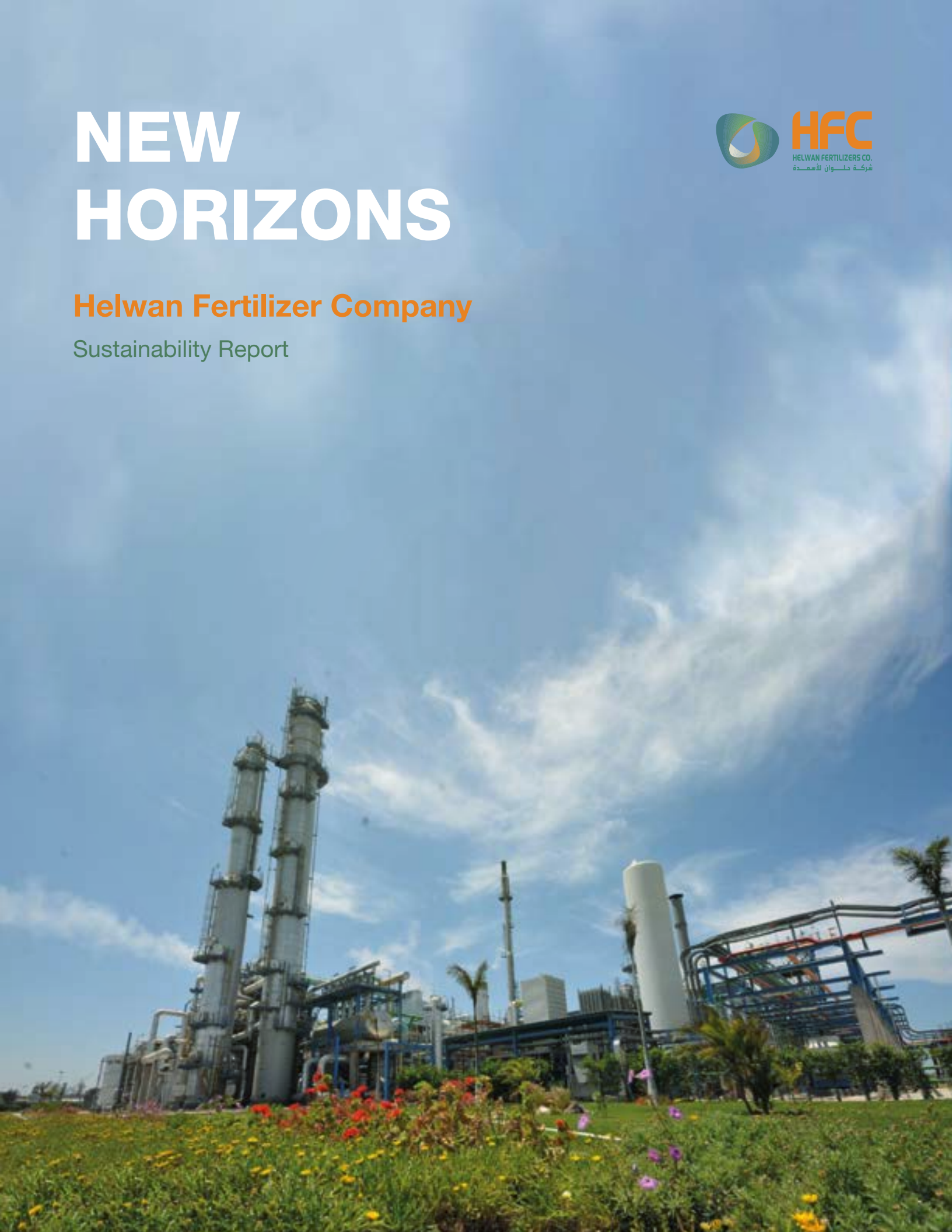
NEW HORIZONS

Helwan Fertilizer Company

Sustainability Report



Helwan Fertilizer Company Sustainability Report

Report Parameters
The 2019 Sustainability Report is prepared in according to the Global Reporting Initiative (GRI) Standards: Core option Reporting. The report has been subject to third party assurance by Dcarbon-Egypt.

Timeline
1 year from 1/1/2019 to 31/12/2019

Reporting Cycle
Annual

Disclaimer
Helwan Fertilizers Co. S.A.E 2019 Sustainability Report is core to sustainable businesses and operations. Although data and figures in the report are accountable, there is no assurance that anticipated future performance will be in accordance due to exceptional unforeseen circumstances.

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Introduction

About This Report

Dear Valued Stakeholders,

It is with great pleasure and honor, that we share with you our first Sustainability Report for the year 2019. At Helwan Fertilizers Company (HFC), we believe that, in addition to the annual financial reports and other communication initiatives, a sustainability report is an important channel to communicate our company's purpose towards sustainability, foster informed dialogue with all stakeholders, and help us identify areas of improvement to manage risks and key sustainability challenges.

The 2019 Helwan Fertilizers sustainability report describes our management and performance of the material Environmental, Social, and Governance issues for our company in line with our purpose.

Our long-term purpose is to drive positive change, and our people are at the core to help us achieve this. At HFC, we cultivate sustainability at all levels to get everyone on board in our sustainability journey. In 2019, we provided a GRI Standards Training Program on Sustainability Reporting to build knowledge and competence for our sustainability project manager and twelve sustainability ambassadors from different departments. To nurture our sustainability culture, we also conducted multiple awareness-raising and capacity-building programs for different employee levels.

This report is a collective work of our people and included a robust stakeholder engagement. The responsible manager for this report and the GRI Certified sustainability ambassadors engaged in one-on-one meetings with different management levels from all departments to get their inputs and views. The engagement process has been monitored by a third-party consultant to provide guidance, and directions for the reporting structure. We also conducted a stakeholder mapping exercise and identified various communication channels engage with our stakeholders, understand their concerns and meet their interests and expectations. The stakeholder engagement results were collected and presented in the materiality matrix to improve HFC strategy on short, medium, and long terms.

To identify the most material topics, HFC incorporated diverse inputs from a range of strategies, guidelines, and initiatives from the sectoral, national, and global perspectives.

The scope of this report is HFC's operations and activities during 2019 and it is prepared in accordance with the Core Option of the GRI Standards. You can find an overview of our alignment with the GRI Standards in the GRI Content Index.

On behalf of all Helwan Fertilizers employees, we welcome you joining us in our sustainability journey. This landmark achievement will pave the way towards the transition to a sustainable and inclusive fertilizers industry in Egypt.

Message From the Chairman

GRI Disclosure 102-14

HFC Chairman and CEO Biography

Eng. Hassan Abd El Aleem was appointed as HFC Chairman and CEO in 2018, equipped with educational and over 20 years of experience in the Chemical Industries field. Eng. Hassan was selected for various managerial positions at Misr Fertilizers Production Company throughout the period 2006 till 2016 till he was appointed as Chairman and CEO, then he was selected to the Chairman for the Egyptian-Spanish for Engineering and Trading from 2016 till 2018.

Eng. Hassan holds a Bachelor of Science in Mechanical Engineering, and Diploma in Pumping Systems. He has a vast experience in mechanical engineering, water treatment systems, utilities management, machinery, and maintenance.

Dear Valued Stakeholders, On behalf of Helwan Fertilizers Company, I would like to take this opportunity to welcome you to our first sustainability report prepared according to the GRI Standards. Through this sustainability report, we aim to showcase how HFC enables balanced growth for all stakeholders while securing that their interests and concerns are addressed effectively.

HFC strives for continuous improvement of its socioeconomic environment through innovative initiatives focusing on social inclusion and stakeholder engagement.

In HFC, we seek not only to maximize our profits but also to ensure that all our stakeholders benefit from our progress. Hence, as HFC continues to grow, our shareholders earn the maximum possible return on capital. At the same time, our local communities flourish, and our most valuable asset, our employees, remain healthy and safe.

I am immensely proud that HFC has a zero-turnover rate. Fair competition with other fertilizer companies in the market is embedded in our management strategy. As a result, HFC has built long-lasting relations with its competing companies to the extent that we exchange knowledge, expertise, and production requirements such as spare parts, to assure operational efficiency of our companies.

Our mission and vision statements clearly affirm that our strategic objective to become one of the fertilizers market leaders and a world-class company operating in an ethical, environmentally friendly, and socially responsible manner that creates positive impact for its stakeholders. It is also important to say that the HFC strategy is guided by the United Nations Sustainable Development Goals and Egypt's 2030 Sustainable Development Agenda. Throughout this report, we present our story and highlight how sustainability is integrated in our strategies.

was a milestone year for HFC. We have revisited all our strategies and rearranged our priorities to keep our business is on the right development path to achieve sustainable growth. Hence, several issues are moved at the top of our agenda, such as employee satisfaction and strengthening our relations with indigenous people around HFC.

Our priorities are also the energy, and water use reduction and efficient waste management to minimize our carbon footprint and improve resource efficiency. Upgrading HFC's IT systems and getting equipped with the latest digital technologies was also an important priority to keep our operational data protected against cyber attacks. Our operations are now automated and ready to deal with emergencies without having to compromise our production process.

Carrying the name of Helwan's city, we proudly create strong relationships with the nearby communities by directing our CSR activities to serve their needs and give e them better opportunities to live a quality life. Hence, a big part of our CSR budget is dedicated to our communities' education and healthcare. At HFC, we believe that quality education and healthcare are key drivers to accelerate the development of our beloved country. Without good health and high-level education, our citizens are not able to develop skills or contribute to the society. . To assure that our CSR activities have a positive impact, we have partnered with multiple NGOs and civil society organizations to support us in reaching and aiding the most vulnerable people and identifying the real needs of our local communities.

During this financial year, we diversified the countries we export to, and instead of focusing only on European markets, we now export to multiple countries in Africa and Asia. Furthermore, we have also started planning numerous future projects to increase our market share and have positive impacts on many more lives as outlined in this report. At the national level, HFC has continued its support to the Egyptian Agriculture Sector by providing about 37% of its total production as subsidized fertilizers to the Ministry of Agriculture and Land Reclamation.

At HFC, we continue to have a positive outlook despite the obstacles of different variables that we face on our path towards excellence. I conclude by stressing our commitment to improving all its social, environmental, and economic aspects towards a sustainable future for our people.

Welcome to our first Sustainability Report, we hope you enjoy our story.

Hassan.

Eng. Hassan Abdel-Alim

HFC has always strived to be a leader in the fertilizers industry by offering great quality products to our clients across the globe, promoting operational and business excellence, and maximizing our stakeholder value.

Who We Are?

What distinguishes HFC?

“Cooperation, Coordination, Integration, and Ownership”

Everyone at HFC feels that they own this company, they care to make it better. Departments cooperate and work in harmony to ensure streamlined production flow.

HFC seeks effective development and excellence in light of the current economic challenges and increasing competition in the local and global market. Knowing that excellence is not achieved by wishful thinking, but by planning, preparation and continuous effort, Helwan Fertilizers Company prepared a comprehensive development and modernization plan at all levels to keep pace with the national development agenda.

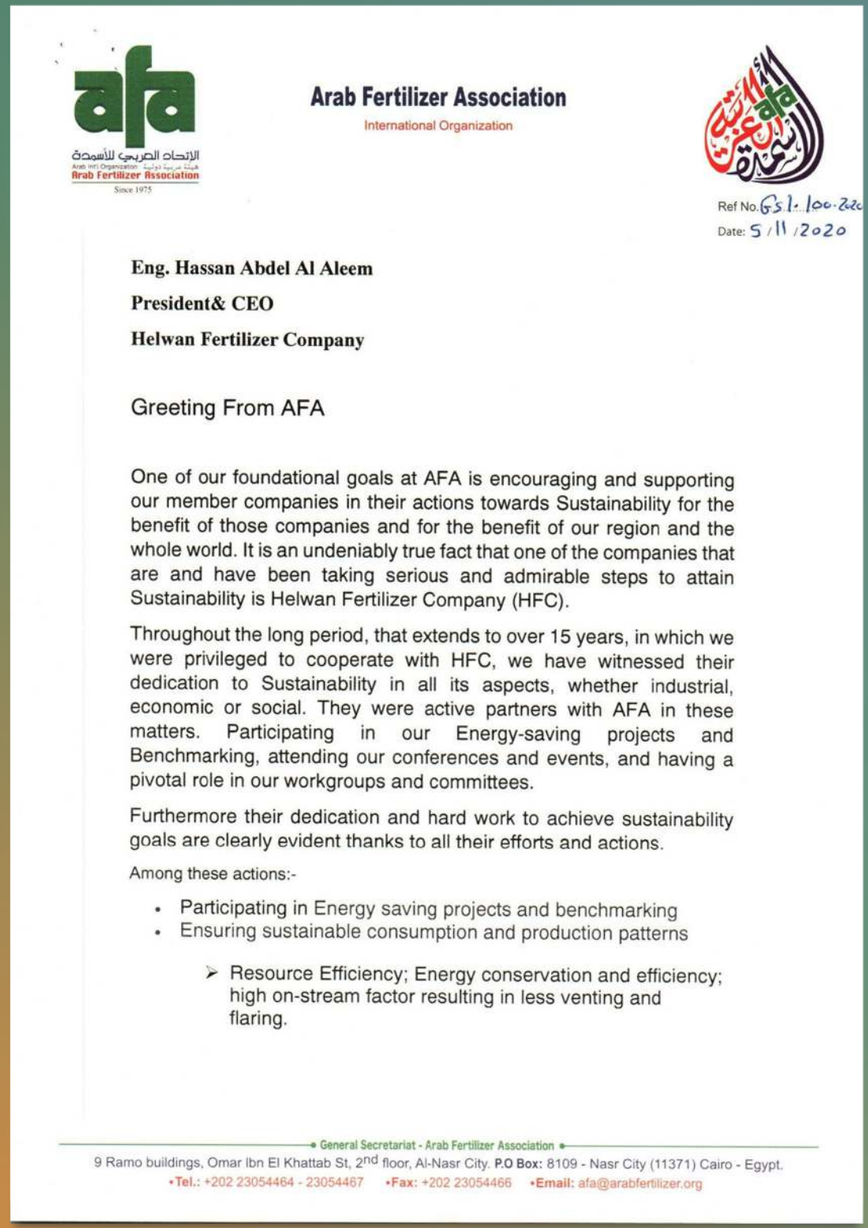
- The technical aspects of implementing a comprehensive overhaul of factories,
- The modernization of various departments such as engineering inspection, electricity, and maintenance
- The update of the company’s information systems, sales and marketing.

The company’s management has succeeded in creating a healthy organizational environment to accommodate distinguished employees and in this way, obtain the best results. These results are reflected in our increasing production, saving costs, and initiatives towards sustainability.

HFC Sustainability Ambassadors

Name	Position
Sobhi Mohamed Habib	Team Coordinator
Ibraheem Hanafi Assawy	CSR Activity Responsible
Amir Mohamed Hafez	HR Specialist
Hatem Mohamed Aly	Sales Specialist
Walid Anwer Elkholy	Head Of Costs and Budget
Mohamed Serag Aldeen	Production Section Head
Karrem Hany Youssef	Senior Of Foreign Purchase
Mohamed Saied Hafez	Mechanical Section Head
Saied Abdou Bially Amer	Head Of Conttrol Section
Mohamed Abd El-Raouf Elshaer	Laboratory Chemist
Ahmed Abdulhady Gouda	HSE Specialist
Essam Mohamed Abdel Wahed	Head of the Electrical Workshops
Hanaa Mazher Abd Alhady	Head of technical studies department
Ahmed Shaaban Abdel Aziz	Sustainability Team executive Manager

Building our regional sustainable future, a testimony from Arab Fertilizer Association



afa
الاتحاد العربي للأسمدة
Arab Fertilizer Association
Since 1975

Arab Fertilizer Association
International Organization

Ref No. GS/ 100-220
Date: 5/11/2020

Eng. Hassan Abdel Al Aleem
President& CEO
Helwan Fertilizer Company

Greeting From AFA

One of our foundational goals at AFA is encouraging and supporting our member companies in their actions towards Sustainability for the benefit of those companies and for the benefit of our region and the whole world. It is an undeniably true fact that one of the companies that are and have been taking serious and admirable steps to attain Sustainability is Helwan Fertilizer Company (HFC).

Throughout the long period, that extends to over 15 years, in which we were privileged to cooperate with HFC, we have witnessed their dedication to Sustainability in all its aspects, whether industrial, economic or social. They were active partners with AFA in these matters. Participating in our Energy-saving projects and Benchmarking, attending our conferences and events, and having a pivotal role in our workgroups and committees.

Furthermore their dedication and hard work to achieve sustainability goals are clearly evident thanks to all their efforts and actions.

Among these actions:-

- Participating in Energy saving projects and benchmarking
- Ensuring sustainable consumption and production patterns
  - Resource Efficiency; Energy conservation and efficiency; high on-stream factor resulting in less venting and flaring.

General Secretariat - Arab Fertilizer Association
9 Ramo buildings, Omar Ibn El Khattab St, 2nd floor, Al-Nasr City. **P.O Box:** 8109 - Nasr City (11371) Cairo - Egypt.
•Tel.: +202 23054464 - 23054467 **•Fax:** +202 23054466 **•Email:** afa@arabfertilizer.org

- Ongoing campaigns and initiatives to reduce waste and encourage recycling

- Taking part in AFA conferences and workshops in all fields
- Permanent participation in AFA workgroups and committees' activities and projects to develop and maintain fertilizer industry in Arab region
- Participating in Water conservation awareness workshops such as zero liquid discharge.
- Revitalizing the global partnership for sustainable development

  - Ongoing partnerships (e.g. IFA, universities…..)

- Supports food security through participation in Agricultural convoys
- One of HFC Interests is Corporate Social Responsibility (CSR).
- End poverty in all its forms everywhere

  - Contributing to economic growth, job creation and trade.
  - Producing fertilizer that increases income of farmers worldwide

- End hunger, achieve food security and improved nutrition and promote sustainable agriculture

  - Work with AFA on trainings on fertilizer use to increase food production
  - HFC has produced 650,000 ton per year where 60% of production exported and 40% dedicated for local use to support the Egyptian farmer.

- Ensure healthy lives and promote well-being for all at all ages

  - Health and Safety for employees, their families and contractors

Arab Fertilizer Association
International Organization

Ref No: GS\.100-2020
Date: 5/11/2020

  - Full health insurance and health campaigns
  - Regular medical check ups

- Ensuring access to water and sanitation for all

  - Long Term Sustainability Goals include water conservation and Energy efficiency
  - Campaigns to reduce water use
  - monitor water quality and maintain piping network and storage tanks ensuring no contamination to water reserves

- Make cities inclusive, safe, resilient and sustainable

  - Minimizing environmental impact of operations

At AFA we value the distinctive support from HFC and are grateful for it and we hope that our cooperation and mutual respect will prevail for much longer achieving even more goals. But even more, as human beings we are thankful for their willingness and dedication to make the wellbeing of the people their primary accomplishment.

Best Regards

Eng. Raed Soub
Secretary General
AFA

General Secretariat - Arab Fertilizer Association
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Keeping An Outstanding Relation With Our Factory Manufacturer. Thyssenkrupp Testimony

thyssenkrupp

thyssenkrupp Industrial Solutions AG, Friedrich-Uhde-Str. 15,
44141 Dortmund, Germany

Helwan Fertilizer Company
To Mr. Hassan Abdel Aleem
CEO
1081 Kornische El-Nile
Garden City, Cairo
Egypt

Industrial Solutions
Fertilizer & Syngas Technologies

Your reference:
Our reference: Bi
Title:
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Extension: +49 231 547-2597
Fax Extension: +49 231 547-2231
E-Mail: tobias.birwe@
thyssenkrupp.com

26.11.2020
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Excellent cooperation and outstanding relationship between HFC and thyssenkrupp Industrial Solutions (formerly Uhde)

Dear Mr. Hassan Abdel-Aleem,
It is our great pleasure to write to you on the occasion of your first sustainability report. It is a major milestone and a great achievement for your company.

thyssenkrupp is very glad of having such trustful and longstanding relationship with Helwan Fertilizer Company (HFC), which dates back to 2004, when the Engineering, Procurement and Construction (EPC) contract for your ammonia and urea complex has been signed with trust and confidence which turned to put a share from thussenkrupp in this project and become a shareholder for the first time in Egypt. The complex using our Uhde ammonia technology and using third party's CO2 stripping and granulation technologies was started-up in 2007 in a team effort with your excellent operation and maintenance team greatly supporting our commissioning experts.

Throughout the years we've been in continuous contact, learned from each other and optimized the plant performance resulting in an efficient, reliable, safe and well maintained fertilizer complex.

We highly appreciate the cooperative and solutions-driven mind-set of HFC Company and thyssenkrupp wishes you and your company all the best for the future and we would be glad to continue our good partnership.

Yours sincerely,

thyssenkrupp Industrial Solutions AG

Thore Lohmann
CEO tkIS Egypt

Tobias Birwe
Head of Sales, Fertilizers & Methanol

Long-Term Contracts With Stable Supply Chain And Logistics Management. Sesco Trans Testimony

SESCO TRANS

Dear Messrs. Helwan Fertilizers Company,

Good day,

It is a great pleasure to seize this opportunity to extend our appreciation for your dedication and substantial contribution to the Egyptian Agrochemical market locally and internationally.
Your company's professionalism and dedication are well clear to all the market players from your foundation date.

We as a major Supply Chain and Logistics Services Provider in the Egyptian market rendering the logistics solutions and services to your esteemed company since more than 13 years ago and continuously for the future are admiring your professionalism and quality control sustainability.
Since receiving your production at the plant passing by the transportation to the export ports of Egypt at the coasts of the Mediterranean and Red Seas, the cargo storage and loading the nominated vessels with the product as fresh as it has been received including the Customs clearance; with no doubts we noticeably the high quality of the product and from our experience in dealing with such products since decades and from different producers we can assume the brilliant quality of your goods. Also, from the feedback we usually received from our multinational clients.
On daily basis 24/7 we are trucking the daily produced quantity in full and in a good condition.
Loading operations on board of the nominated vessels carried out as per the MSDS procedures and from our accumulated experience over the years and to help our customers, shipping techniques and methods have been developed to reach unprecedented global record rates until we were able to achieve 80 thousand tons daily loading rate with fantastic quality control.

Your trust in our services is highly appreciated.

We look forward to your continued support in the success of the Egyptian economy.

Regards,

SESCOTRANS for Developed Logistics S.A.E.

SESCO TRANS
سيسكو ترانس للوجستيات المتطورة ش.م.م

Our Quality, Credibility.

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Suez:
Inside El Adabiya Port
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Keeping An Outstanding Relation With Our Factory Manufacturer. Stamicarbon Testimony

The innovation & license company
of Maire Tecnimont.

Stamicarbon

Stamicarbon B.V.
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The Netherlands.
P.O. Box 53 - 6160 AB Geleen,
The Netherlands.

Tel. +31 46 4237000
Fax +31 46 4237001

info@stamicarbon.com
www.stamicarbon.com

Helwan Fertilizer Company
To Mr. Hassan Abdel Aleem
CEO
1081 Kornische El-Nile
Garden City, Cairo
Egypt

date: November 5, 2020
your refnr.: Letter of October 27, 2020
our refnr.: 10775 Stac/Z524
subject: Excellent cooperation & longstanding relationship Stamicarbon and HFC

Dear Mr. Abdel Aleem,

It is my great pleasure to write to you on the occasion of your first sustainability report. This report is a major milestone for your company and a great achievement.

Stamicarbon is very pleased with our good cooperation and longstanding relationship, which dates back to 2004, when the agreements for the construction of your fertilizer complex were signed. The urea plant using Stamicarbon's CO_2 Stripping technology and the granulation plant with Stamicarbon's new Granulation Design started production in 2007.
For us this was also an important moment, as it was our third designed granulation plant with a world scale capacity that became operational and even the third one in Egypt. This showed a great confidence in our technologies and capabilities, which we valued very much.

It also demonstrated your guideline to sustainability as you choose for a granulation design with a very low dust formation in the granulator, allowing for a minimum formaldehyde usage and a run time between washing stops that is longer than in other granulation technologies. You even reported a record uninterrupted operating intervals in the granulation plant!

Since the start-up of the plants we have kept in regular contact by performing several plant and equipment inspections in order to keep your plants running reliably, efficiently and above all safely. Changing the traditional valve construction materials (BC.01, HVD-1) to Safurex shows your innovation mindset and your commitment to a sustainable operation of your facilities.

We appreciate the constructive way of cooperation with your company and wish you and your company a prosperous business and a bright future.

With kind regards,
Stamicarbon B.V.

P. Djavdan

Pejman Djavdan
CEO

1/1

Collaboration With Governmental Organizations To Make Difference, Testimony From Egyptian Organization For Standardization

EGYPTIAN ORGANIZATION FOR
STANDARDIZATION & QUALITY (EOS)
Chairman

EOS

الهيئة المصرية العامة
للمواصفات والجودة
رئيس مجلس الإدارة

To:
Mr. Hassan Abdel Aleem
President and CEO
Helwan Fertilizer Company

From:
Eng. Ashraf Afify
EOS Chairman
Egyptian Organization for Standardization and Quality (EOS),
Fax: +202 22845504
E-mail: eos@idsc.net.eg

Date: 02 -12-2020

Dear Mr. Hassan Abdel Aleem,

It is an admiration for the Egyptian Organization for Standardization and Quality "EOS" to honor the fruitful scientific collaboration with Helwan Fertilizers Company (HFC). The professional contribution of HFC to one of our committees "Fertilizers Committee" through one of its employees Chemist/ Ahmed Shaaban Abdel Aziz is really appreciated. Sharing professional knowledge and experience between committee members is crucial to issue and renew the Fertilizers Industry Standards for Arab Republic of Egypt aiming at improving the Egyptian fertilizers industries.

We wish to continue our alliance to the best of our organizations and our beloved country.

With my best regards

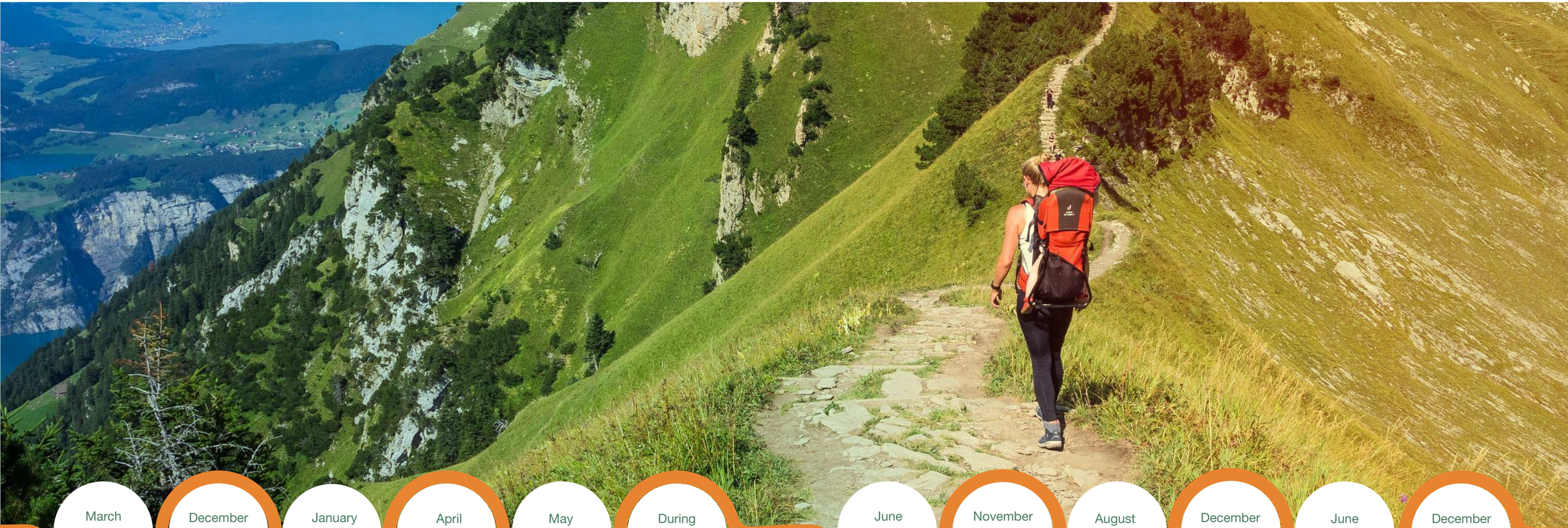
Yours sincerely,

Eng. Ashraf Esmael Afify,
EOS Chairman

16 Tadreeb El-Modarrebeen St., Ameriya, CAIRO - EGYPT
Departments Service : 22845522 / 22845524
Fax: 22845504
E-mail : mor@idsc.net.eg

١٦ شارع تدريب المدربين - الأميرية - القاهرة
خدمة الادارات: ٢٢٨٤٥٥٢٢ / ٢٢٨٤٥٥٢٤
الفاكس: ٢٢٨٤٥٥٠٤

Milestones



March 2004
Signing the contract to establish the company.

December 2006
The first operation of the ammonia plant.

January 2007
First operation of the urea plant.

April 2007
Selling the company's first export shipment.

May 2008
The company achieved its first annual profits.

During 2009
the company obtained international certificates in management systems: quality - occupational safety and health - environment.

June 2012
Stamicarbon paid tribute to Helwan Fertilizer Company for the longest operating period of the granulation unit at the Stamicarbon Forum in the Netherlands.

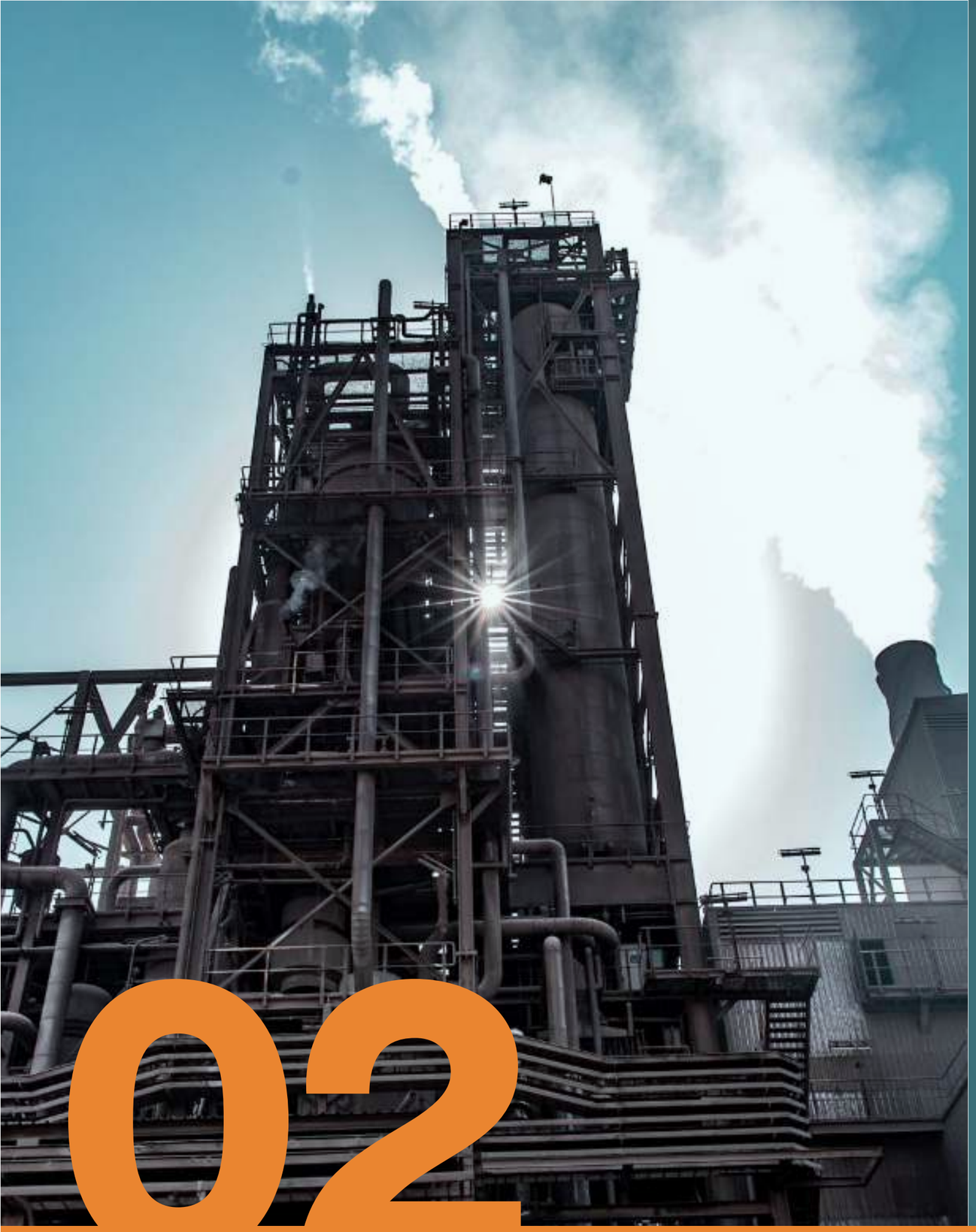
November 2018
Signing a contract to establish a database management system and business information management with Oracle.

August 2018
Eng. Hassan Abdel-Alim is appointed as Managing Director of the company.

December 2018
Eng. Hassan Abdel Alim is appointed as Chairman of the Company's Board of Directors.

June 2019
The company obtained a certificate of "Protect and Sustain Stewardship" from the International Fertilizer Association (IFA) at their conference held in Canada.

December 2020
The company releases its first sustainability report for its business for the year 2019



02

2019 Highlights

Performance Highlights

Tones Urea Production

645,889

Thousand

19%

increase from 2018

Net Profits:

USD 46.7 million

Total Sales for 2019 amounted to **$178 million**

2019

Total Sales for 2018 amounted to **$167 million**

2018

Total Sales for 2017 amounted to **$159 million**

2017

525,008

GJ Energy Saved

0.95 MM³

Reduction in Freshwater Usage

CO_2

KgCO2eq Emission Reduction

113,500

Total Spent on CSR Activities:

USD428,824

Operational Highlights

Clients Served:

Market Share:

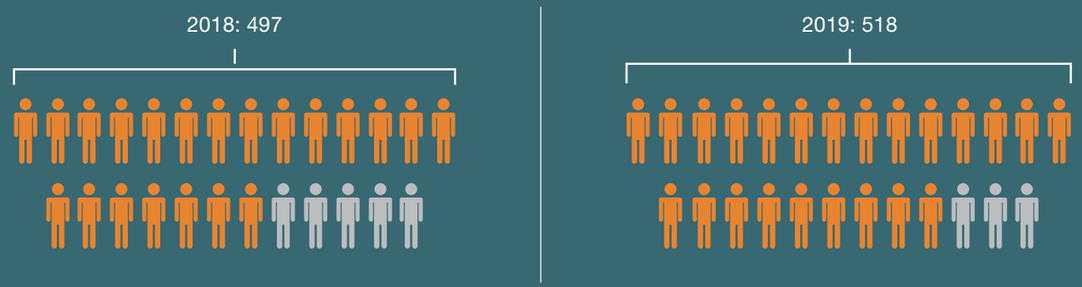
0.05%

Urea International Market

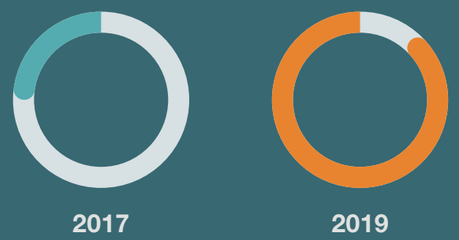
Safety Hours with **Zero Injuries**

937,800

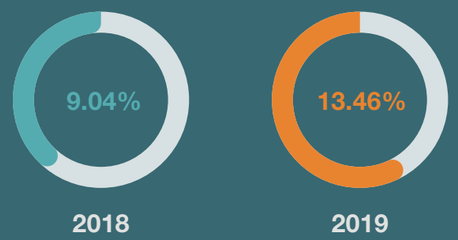
HFC Total Employees:



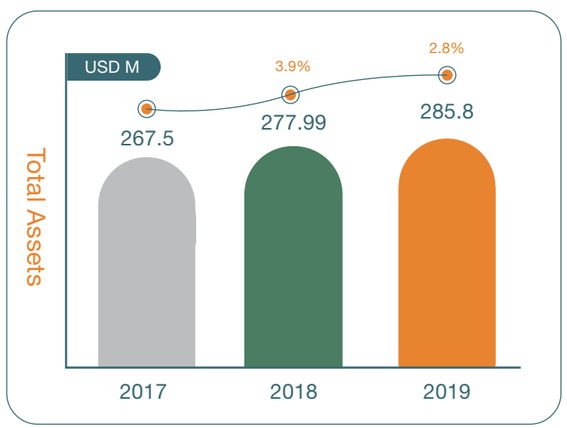
Training Budget increase **457%**
In 2019 compared to 2017

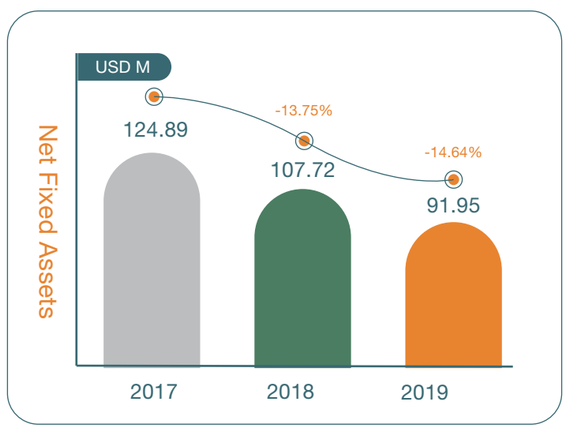


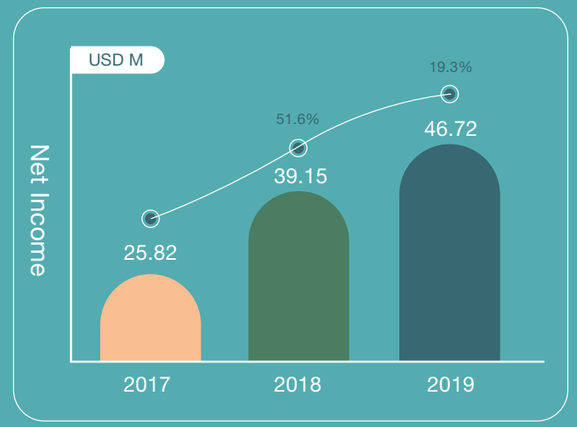
Lost Time Injury Frequency Rate

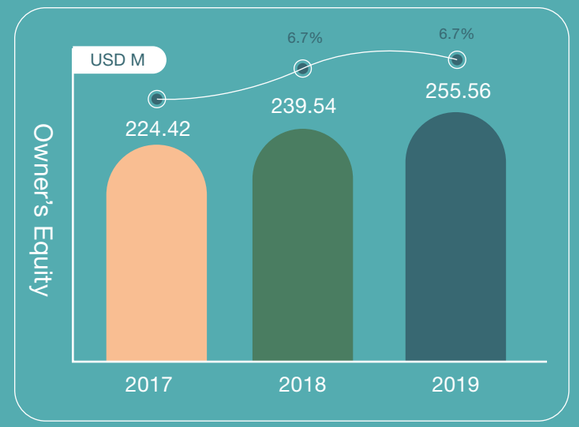


Financial Highlights









Current Ratio		
2017	2018	2019
5.15	7.58	11.45

Quick Ratio		
2017	2018	2019
3.99	6.06	9.63

	2017	2018	2019
Owner's Equity / Total Equity and Liabilities (%)	83.9	86.2	89.4

International Awards and Certification

HFC plants are certified under the Integrated Management System umbrella including ISO 9001, ISO 14001 and ISO 45001 and planning for ISO 50001. Also, HFC has received the IFA Protect & Sustain Management System Certification.

Environmental Management System Certificate, ISO 14001-2015

Certificate EG10/2526

The management system of

Helwan Fertilizers Co.

Helwan, El Tebeen,
Cairo, Egypt

has been assessed and certified as meeting the requirements of

ISO 14001:2015

For the following activities

Production and sales of Granular Urea and Liquid Ammonia.

This certificate is valid from 7 April 2019 until 7 April 2022
and remains valid subject to satisfactory surveillance audits.
Recertification audit due a minimum of 60 days before the expiration date.
Issue 5. Certified since 7 April 2010

Authorised by

SGS United Kingdom Ltd
Rossmore Business Park Ellesmere Port Cheshire CH65 3EN UK
t +44 (0)151 350-6666 f +44 (0)151 350-6600 www.sgs.com

HC SGS14001 2015 0818

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Occupational Health and Safety Management Systems, ISO 45001-2018

Certificate EG19/4334

The management system of

Helwan Fertilizers Co

Helwan,
El Tebbin, Egypt

has been assessed and certified as meeting the requirements of

ISO 45001:2018

For the following activities

Production and Sales of Granular Urea and Liquid Ammonia

This certificate is valid from 28 November 2019 until 28 November 2022
and remains valid subject to satisfactory surveillance audits.
Recertification audit due a minimum of 60 days before the expiration date.
Issue 1. Certified since 28 November 2019

Authorised by

SGS United Kingdom Ltd
Rossmore Business Park Ellesmere Port Cheshire CH65 3EN UK
t +44 (0)151 350-6666 f +44 (0)151 350-6600 www.sgs.com

HC SGS 45001 2018 0318

Page 1 of 1

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IFA Protect & Sustain Product Stewardship Excellence Program

SGS

Certificate EG18/4183

This is to certify that

Helwan Fertilizers Co.

Helwan, El Tebbin
Cairo, Egypt.

meets the minimum requirements as defined under the

IFA Protect & Sustain Product Stewardship Programme

To achieve the level of IFA Product Steward Excellence
Scope of the IFA Protect & Sustain management system

Production and sales of Granular Urea and Liquid Ammonia.

Detailed information is available on request at the offices of SGS Egypt Limited LLC

This certificate is valid from 10 November 2018 until 09 November 2021
Issue 1. Certified since 10 November 2018

ifa INTERNATIONAL FERTILIZER ASSOCIATION

protect&sustain THE GLOBAL FERTILIZER INDUSTRY PRODUCT STEWARDSHIP INITIATIVE

Authorised by

Certifications and Business Enhancements (CBE)
SGS Egypt Limited LLC
9G Ahmed Kamel St. (of Laselky St.), New Maadi
P.O. Box 581 Maadi 11728

SGS IFA 01 0611 M2

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Quality Management System Certificate, ISO 9001-2015

SGS

Certificate EG10/2509

The management system of

Helwan Fertilizers Co.

Helwan, El Tebeen,
Cairo, Egypt

has been assessed and certified as meeting the requirements of

ISO 9001:2015

For the following activities

Production and sales of Granular Urea and Liquid Ammonia.

This certificate is valid from 28 March 2019 until 28 March 2022
and remains valid subject to satisfactory surveillance audits.
Recertification audit due a minimum of 60 days before the expiration date.
Issue 5. Certified since 28 March 2010

SYSTEM CERTIFICATION ISO 9001 SGS

MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT IAF

Authorised by

SGS United Kingdom Ltd
Rossmore Business Park Ellesmere Port Cheshire CH65 3EN UK
t +44 (0)151 350-6666 f +44 (0)151 350-6600 www.sgs.com

HC SGS 9001 2015 0818

Page 1 of 1

UKAS MANAGEMENT SYSTEMS 0005

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Our Profile

HFC Today

Helwan Fertilizer Company “HFC” is an Egyptian Shareholding company that was incorporated in 2004 as an Egyptian joint venture subjected to the provision of law No. 8 of the year 1997, amended by law No. 72 of the year 2017.

The year 2004 marked the signing of the contractual agreement with the well-experienced German company, Thyssenkrup “Uhde”, as the general contractor to construct the first line of production for Liquid Ammonia and granulated Urea plants. HFC is located at the industrial zone in El-Tebbeen–Helwan, approximately 40 kilometers away from the center of Cairo city.

The Company specializes in the production of urea fertilizer 46 % nitrogen and liquid ammonia which is an intermediate product. There is a plan to construct another production line similar to the existing one. We are one of the leading fertilizer manufacturers in Egypt.

Company Purpose	**Helwan Fertilizer Company “HFC” is a company specialized in production and marketing of nitrogenous fertilizer.**
Date Incorporated	**2004**
Company Governing Law	**The provision of law No. 8 of the year 1997, amended by law No. 72 of the year 2017.**
Location	**El-Tebbeen–Helwan, Arab Republic of Egypt**
Scale	**Large**
Number of Employees	**518**
Core Products	**Liquid Ammonia and Granular Urea**
Key Markets	**Europe, Mediterranean Region, North America, Latin America, Southeast Asia.**
Total Production 2018	**678,310 Tons of Urea**
Total Production 2019	**645,878 Tons of Urea**
Certifications	• Certification of Compliance with ISO 9001 Requirements. • Certification of Compliance with ISO 14001 Requirements. • Occupational Health and Safety Management System ISO 45001 Requirements • Certification of Compliance with IFA Protect and Sustain Product Stewardship Excellence.
Memberships	• IFA (International Fertilizers Association) • AFA (Arab Fertilizer Association) • ECHA (European Chemical Agency) • AHK (German-Arab Chamber of Industry and Commerce) • Chemical of Industries Chamber

History of Shareholder Structure

Ownership and Legal Form:

Helwan Fertilizer Company “HFC” is an Egyptian Shareholding company was incorporated in 2004 as an Egyptian joint venture subjected to the provision of law No. 8 of the year 1997, amended by law No. 72 of the year 2017.

Development in number of operations and market share	**No Change in the number of operations, but market share varies according to the world market dynamics.**
Development in operational locations	**The location of the company was not change since establishment.**
Development in the number of Employees	**The number of Employees has increase from 497 in 2018 to 518 in 2019.**
Development in Capital	**The total assets increased by 2.8% and the Owner equity increased by 6.7 % in 2019.**
Development in profitability	**The net income has increased by 51.6% in 2017 and 19.3 % in 2019.**

Memberships:

ECHA EUROPEAN CHEMICALS AGENCY

AHK Deutsch-Arabische Industrie- und Handelskammer German-Arab Chamber of Industry and Commerce الغرفة الألمانية العربية للصناعة والتجارة

غرفة الصناعات الكيماوية Chemical of Industries Chamber

الإتحاد العربي للأسمدة هيئة عربية دولية afa Arab Fertilizer Association

International Fertilizer Industry Association

Commitment To Support The International Fertilizers Community Goals. Testimony From International Fertilizer Association

ifa
INTERNATIONAL FERTILIZER ASSOCIATION

24 November 2020

IFA STATEMENT

TO THE ATTENTION OF HELWAN FERTILIZERS COMPANY (HFC)

The International Fertilizer Association (IFA) would like to commend Helwan Fertilizers Company (HFC) for the publication of its first Sustainability Report.

HFC is a member of IFA since 2008 and has been very committed to IFA's product stewardship initiatives. Since 2018, HFC has a valid Protect & Sustain certificate. This global stewardship management framework was developed by IFA members with independent auditors, for IFA members; it is a global industry reference for product stewardship management, and a key pillar of the IFA2030 sustainability transition strategy. HFC also participated in IFA's 2020 safety and environmental benchmarks.

Sustainability is at the core of both IFA's vision that "productive and sustainable agricultural systems contribute to a world free of hunger and malnutrition", and IFA's mission, which is to "promote the efficient and responsible production, distribution and use of plant nutrients". In future, the fertilizer industry, like other industries, will be expected to run ever more responsible and sustainable businesses to remain a vibrant industry while maximizing its contribution to solving global challenges and creating opportunities for the progress of society.

We look forward to pursuing our efforts with HFC and all our members.

Patrick Heffer
Interim Director General

Address: 49 avenue d'Iéna, 75116 Paris, France - VAT No: FR06 775 750 805
Tel: +33 1 53 93 05 00 - Fax: +33 1 53 93 05 45 - E-mail: ifa@fertilizer.org - Web: www.fertilizer.org
Registered in England n° 718812 at Confederation House, East of England Showground, Peterborough Cambridgeshire PE2 6XE

Vision and Mission

Continues growth and sustainable development are the targets of Helwan Fertilizers Company, this through implementation of the best international standards in the quality, environment, health and safety with the recruitment and development of the best human cadres while adopting the latest technological practices to achieve the highest levels of performance to meet the requirements of customers and exceed their expectations.
Helwan Fertilizers company is continuous do high efforts to contribute to meet the country's needs of nitrogen fertilizers.

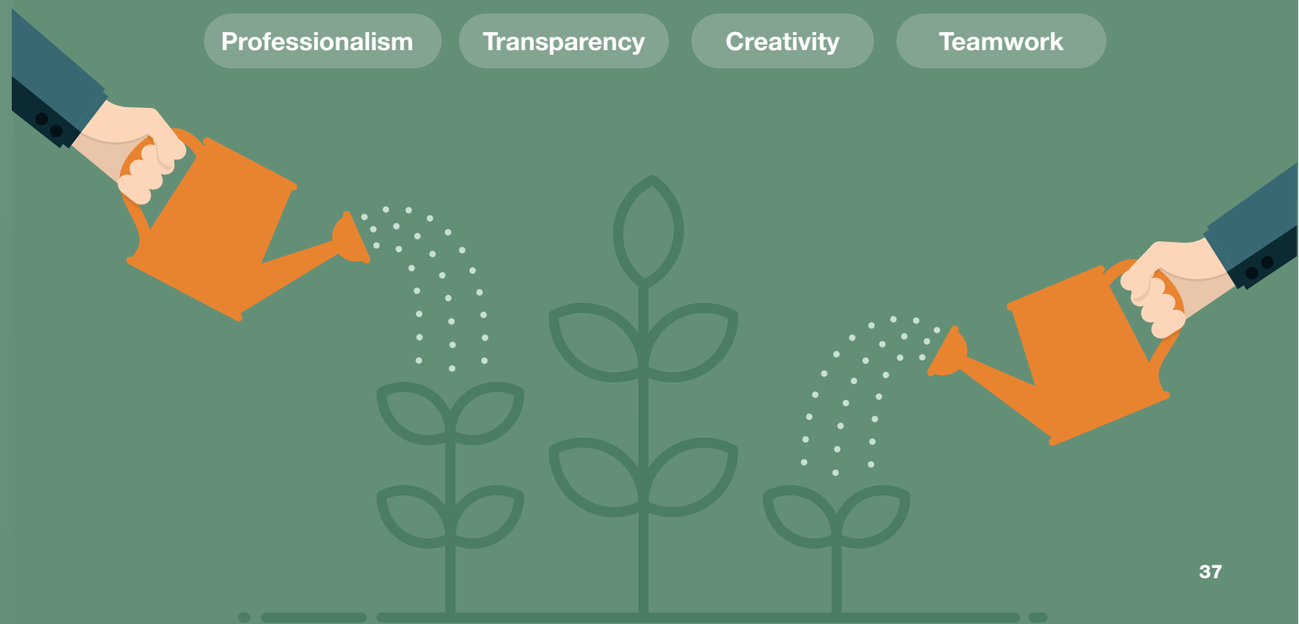
The company is currently studying the following projects:

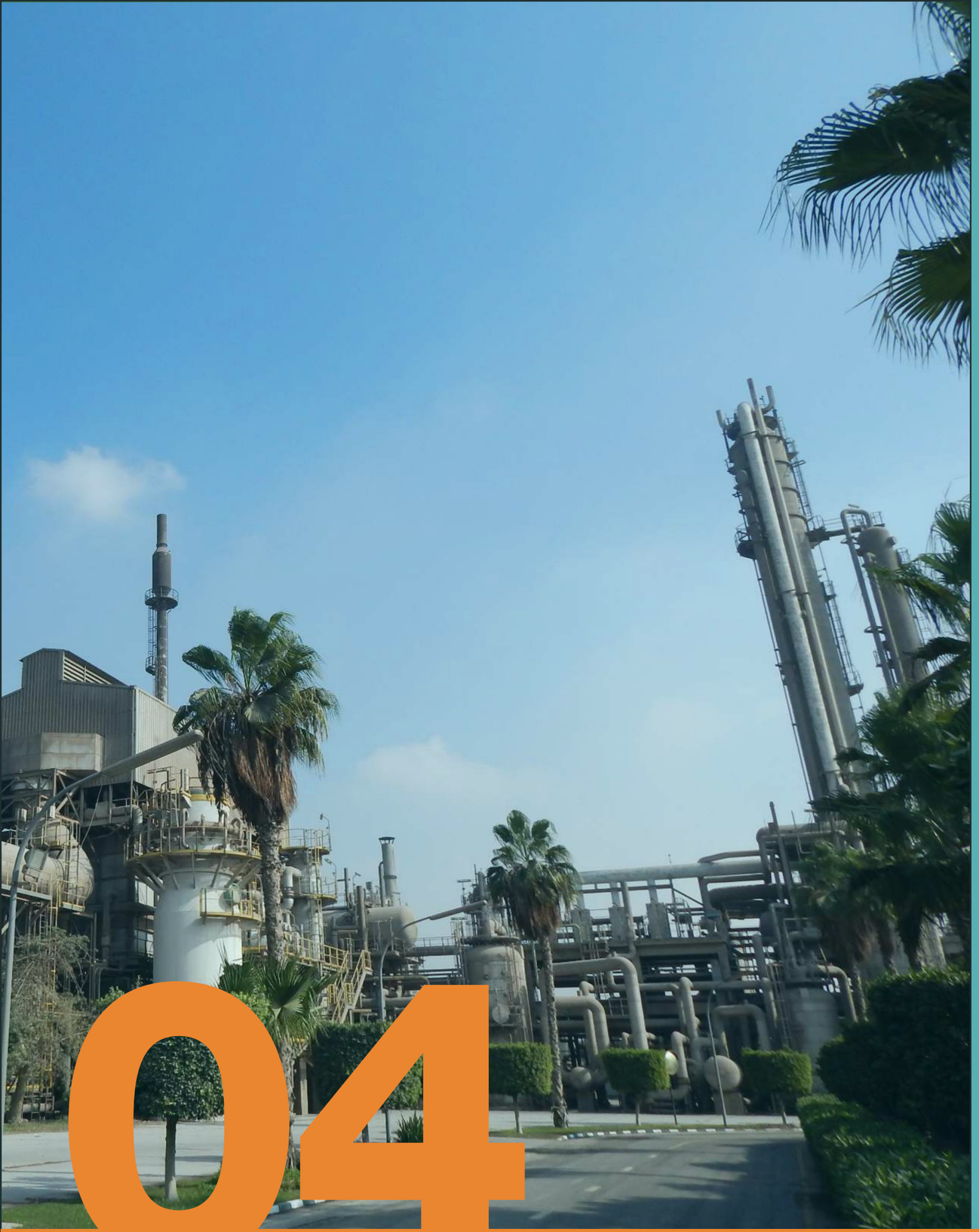
- Construction of the second line of urea production.
- Construction of new lines for production another type of fertilizer.
- the company studying the establishment of an integrated water treatment station

Values

Our Corporate Values

Excellence | Integrity | Respect | Social Responsibility | Safety | Professionalism | Transparency | Creativity | Teamwork





04

HFC Governance

Accountability and Efficiency

HFC is committed to applying the highest corporate governance standards toward all stakeholders, including shareholders, clients, employees, regulatory bodies, and the community. Our focus on good corporate governance practices is the cornerstone for sustainable growth and long-term value creation for all our stakeholders.

HFC aligns all stakeholders' interests and integrates them in the decision making process. We also believe that corporate governance is not limited to rules and regulations, but it embeds business ethics and values. For us, corporate governance is about creating organizational excellence, increasing shareholders' value, and employees' and clients' satisfaction. We believe in leveraging our resources to transform opportunities into dynamic actions.

Above all, accountability, integrity, and transparency are the key drivers to improve decision-making, create credibility and strengthen stakeholder confidence. Hence, at HFC, we apply reasonable governance practices adequate with our size and current level of operating activities along with our objectives. Our governance structure is clear and effective, supported by our policies, standards, and guidelines.

Shareholders Structure

About 99% of the company's shareholders are Egyptian companies, banks and institutions.

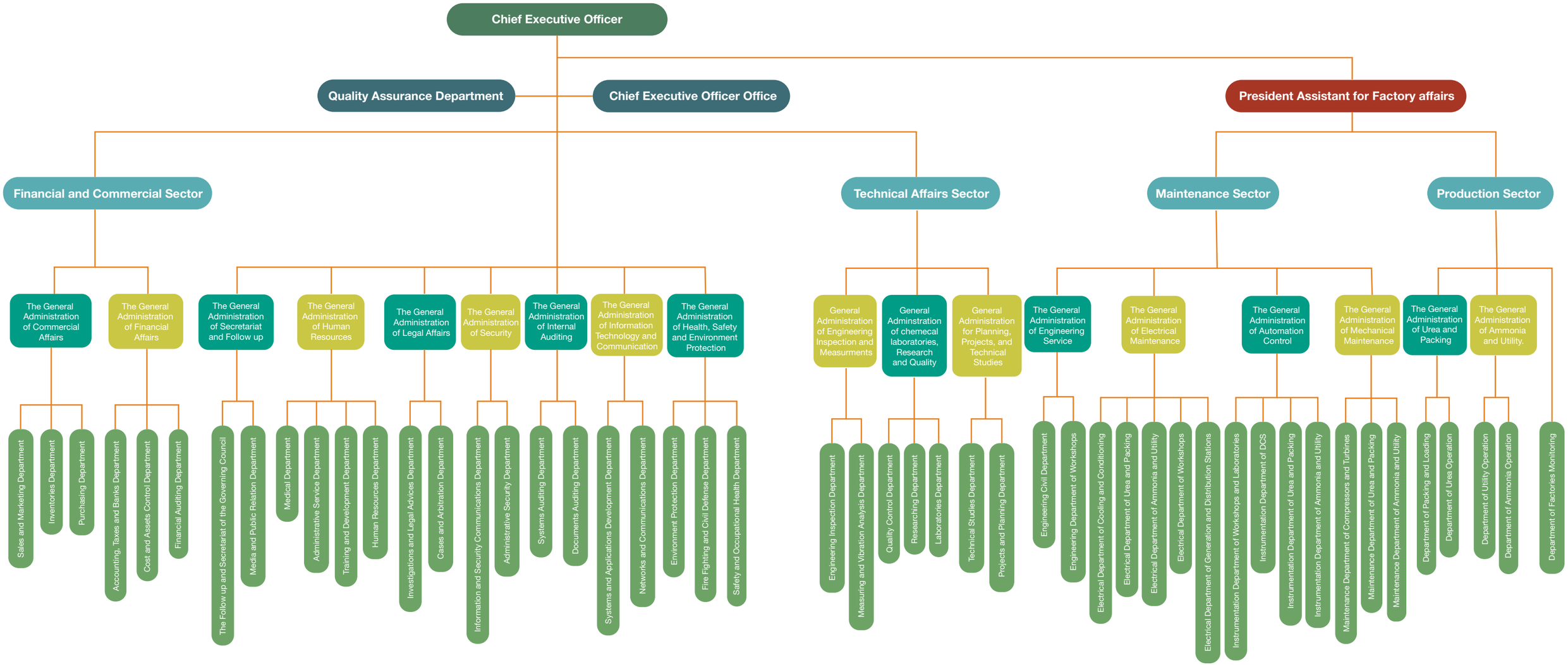
- **17%** Abu Qir Fertilizers and Chemical Industries
- **15%** Social Insurance Fund For Government Employees
- **10%** National Investment Bank
- **10%** Egyptian Agriculture Bank
- **10%** Holding Company for metal industries
- **10%** AL-Nasr Co. for the manufacture of coke and basic chemicals
- **2%** Thyssenkrupp
- **5%** Social Insurance Fund For Public and Private Business Employees
- **5%** Faisal Islamic Bank of Egypt
- **5%** MID Bank
- **5%** Misr life insurance company
- **6%** Misr Insurance Company

BOARD OF DIRECTORS

HFC Board of Directors (BoD) is the highest decision-making body. Its main role is to assure long-term corporate values and sets the strategic framework for growth. As of January 1st 2019, the BoD comprised of:

11 members, **including the CEO and Managing Director.** Out of the 11 members **2** **are women.**

The non-executive directors of the board members bring an independent and wider perspective in the Board's deliberations and decisions. They have an objective view of the external factors affecting the Company in our business environment. These directors make a constructive contribution to the Company by ensuring fairness and transparency while evaluating the management team's business plans.



Job Description Analysis	
Job	Numbers
Vice President	1
Sector Heads	4
General Managers	18
Department Heads	55

COMMITTEES OF THE BOARD

The Board of Directors reviews the Company's performance frequently to ensure timely and effective operational flow. In 2018 and 2019, various committees were formulated with specific terms of reference and scope, as well as delegated authorities to manage emerging corporate issues.

Committees:

01

Comuterized Manitanance Mangement System (CMMS) Committee

The committee aims to review and supervise the requirements for the development and efficiency of the network infrastructure as well as the establishment of a data center. It also aims to establish a state-of-the-art building to structure a comprehensive center for preserving data and controlling all networks; the Internet and the intranet. In 2018, a sub-committee was also formed to manage the Company's Oracle system. Its mission was to monitor the Oracle's operational performance and secure the system's safety in order to reach the desired results.

02

Occupational Health and Safety Committee

As a permanent committee convenes monthly, its mission is to review and examine work conditions, root causes of accidents, injuries, occupational and chronic diseases, and reviewing emergency plans.

03

Investment Committee

An ad-hoc committee has a primary authority on developing the corporation's investment objectives and corporate policies regarding investing. The committee was convened in 2019 to evaluate HFC's future investment projects, review the feasibility studies along with the company's contracts.

04

Operations Risk Analysis Team

A permanent committee has been established to evaluate and analyze production units in terms of the identification and management of potential risks in the production process. The Committee also reviews and monitors all corporate risks together with other related issues as prescribed in the Risk Management Policy.

05

Annual Inventory Committee

A Permanent committee convenes annually assess the company's assets, properties. It also oversees the implementation of the policies, procedures, and instructions of handling fixed assets, and inventory stock and flow.

06

Human Resources Committee

A Permanent Committee is responsible for creating and monitoring value-based systems and policies. Its overall mission is to ensure that the organization follows local and national laws and regulations and create an attractive working environment for current and prospective employees. The Committee is also responsible for establishing the corporate governance principles for the human resources management. In line with its scope, it s examines the employees' recruitment and compensation process, and ensures that human resources- related risks are appropriately managed within the strategic planning process. In 2018, the committee performed amendments, reviewed the employees' positions, and approved efficiency measurement reports. Also, a sub-committee was introduced under the Leadership Committee. Its mission is to consider of employees 'promotions as per the company's organizational structure.

07

Corporate Social Responsibility Committee

A permanent committee was formed to provide guidance and review corporate policies and culture in addition to the progress on social, ethical, environmental and Community issues. The key purpose of the Committee is to assess requests for assistance submitted by the competent authorities and respond to the eligible ones.

08

Distributed Control System (DCS) Committee

An ad-hoc Committee was founded to evaluate and make decisions on technical issues related to the control systems of the utility and packing equipment units.

09

Protect and Sustain Certification Committee

An adhoc committee was formed in 2018 to set HFC on the direction of being certified by IFA Protect and Sustain certification, its role is to integrate all the applied international business management systems priorities that assure the company's growth path to gain IFA Protect and Sustain Certification.

10

Audit and Governance Committee

A permanent Audit and Governance Committee is responsible for examining and reviewing internal control procedures, audit mechanisms, and tools.

Our Code of Ethics

HFC management has zero-tolerance for corruption and adheres to high ethical standards in all its activities. Our reputation and integrity depend on each employee, officer, director, who maintain personal responsibility for ethical business conduct.

HFC code of ethics, along with our core values, and our Suppliers' Code of Conduct, provide a clear direction to all employees, contractors and suppliers on how to behave ethically in accordance with our policies and standards. The code covers a range of topics, including business ethics, human rights, and anti-corruption. It also helps ensure regulatory adherence and prevents potential risks and liabilities.

We encourage employees and contractors to ask for guidance about ethical concerns in order to understand their responsibility, and report actual or suspected misconduct.

At HFC, we have a grievance mechanism for employees, contractors, and suppliers to report freely suspected violations. We examine and respond accordingly to requests for assistance from our employees and stakeholders across all our business activities. issue, , We assign each issue to the appropriate management level depending on its scale and nature.

Knowledge Sharing

HFC shares its knowledge and know-how even with its competitors to create and sustain good relations between HFC and its stakeholders. Even spare parts are shared when needed with other fertilizers companies. Other knowledge sharing includes research, studies, latest updates, proving the good relations and direct contact with their competitors who are a main stakeholder for HFC since our future plan is to create a knowledge center including all stakeholders of our sector.

Risks and Opportunities

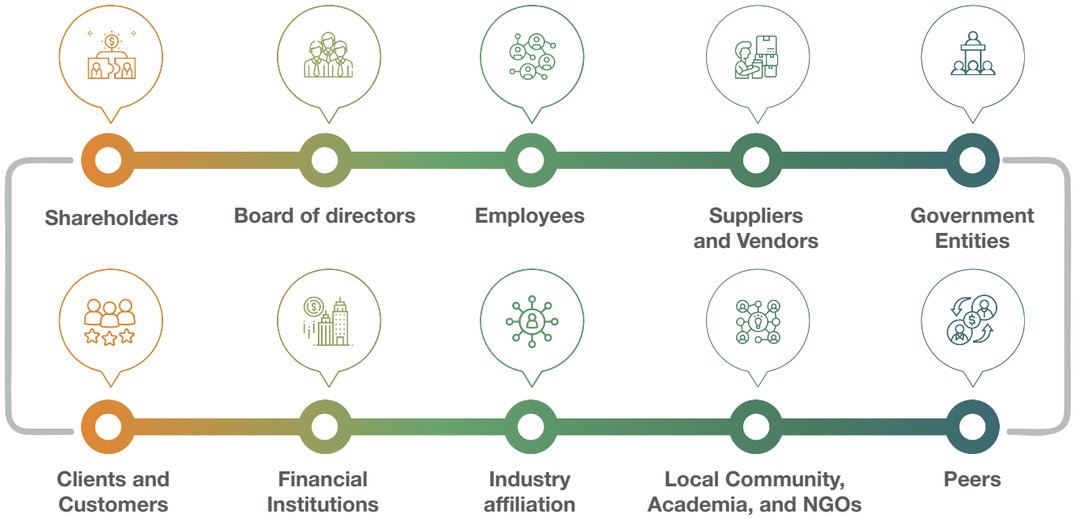
Throughout the assessment process, risk categories have been identified as well. The risk categories and the management approach toward mitigating the risks are described in the following table:

Risk	Definition	Local (at HFC)	Regional	Inter-national	Management Approach
Strategic Risks	All geopolitical and economic risks that impact corporate strategy setting and hence its growth and development path.	●	●	●	To avoid any reduction in the exports of our products, HFC marketing policy is always working towards penetrating new markets to have a steady state or a growing path for revenues
Laws & Regulations	complying to all laws and regulations, domestic, regional, and international.	●			HFC abides by all the following laws and Regulations: 1) Labor laws 2) Enviromental laws 3) Health and Safety laws 4) Human rights laws 5) child labor laws 6) gender equality laws . For enviromental laws: HFC was the first factory in Egypt to connect to the follow up and monitoring system at the Ministry of Enviroment to continually monitor fumes coming out of the chimeny to ensure that the factory is abiding by the permissbale amount of GHG and does not exceed the daily limits.
Financial Risks	Budgeting and cash flow management	●			HFC has an efficient budgeting system to ensure that working capital is always available to cover production needs and expansion plans to maximize profits.
Products Prices Risk	Future products prices of inputs, final products	●	●	●	HFC continously follows news about raw materials prices, energy prices, and other input prices both locally and internationally to be prepared for any changes in the final products prices and avoid any market shocks
Market Supply and Demand	The demand on fertilizers is expected to increase, as a result the raw materials used in this industry such as nitrogen, potash and phosphate need to be available. This availability will have a strong consequential effect on establishing the sector's position internationally and developing & supporting a number of other sectors such as food security.	●	●	●	HFC regularlly follows national and international media outlets to predict the demand on fertilizers and the market's position
Operational Risk	Toxic release of ammonia , Blast over pressure due to Vapor Cloud Explosion (VCE) of Hydrogen inside Urea high pressure Scrubber, Fire and Explosion due to failure of Natural Gas, Syn Gas or any flamable gases pipelines, Ammonia Vessel Blast due to malfunction of over pressure safe guards, Welding failure inside major equipemnts, Failure of all Electricity power supply " Steam Generator,National Power grid and Diesel Generator", and Failure of the central Air Conditioning System (ACS)	●	●	●	Please visit our operational excellence section.

Risk	Definition	Local (at HFC)	Regional	Inter-national	Management Approach
Exchange Rate	Volatility of Egyptian currency to foreign currency	●	●	●	Since the inception of the economic reform program, HFC has focused on increasing its exports to the inter-national market, that has had its impacts on increasing total revenues and opening channels for foreign currencies.
Cyber Security and Technological Disruptions	Cyber-attacks are considered high risk for the industry as it relates directly in operations and production on the follow up and monitoring systems of the plants. Servers and networks infected with a deadly virus could cause complete shutdown or worse causing hazardous malfunctions.	●	●	●	• Digital Control system: 1) protecting HFC against cyber attacks 2) continuous auditing and reviewing of the system to ensure full security against cyber attacks 3) two firewalls to protect against cyber attacks
Water Scarcity	The World and Egypt have a challenge to access to fresh water	●	●	●	Decreasing the consumption of water used in operations for Ammonia & Urea plants in HFC through using the minimum water design quantity and HFC plan to establish Reverse Osmoses "RO" project that aim to purify the water used in the industrial process and reducing the demineralization unit loads.
Asset Integrity	Equipment depletion/deterioration	●			HFC has a very efficient maintenance department that ensures that assets are well maintained and checked regularly, which increases their durability. To know more about our maintenance strategy. (please visit our maintenance section) .
Energy Supply Risk	Natural gas is a key feedstock in the manufacturing of fertilizers industry, for which there is no practical substi-tute, accounting for a high percent of operating costs	●	●	●	HFC has a limited role in managing the impact of Natural Gas in case of being in low quantity and also the fluctuations in his prices
Supply Chain Risk	Troubles in the availability of spare parts, packaging, and other related materials.	●			HFC has very good relations with its Egyptian peers in the market. When a fertilizers company needs a certain spare part, it can loan it from another factory. Also knwoledge sharing is common between the peers in the market, and there is a future initative to create a knowlegde bank between the fertilizers companies in the Egyp-tian martket to share the best practices and ensure the most efficient production process in each factory
HR Risks	Availability and retainment of employees	●	●	●	HFC ensures it is sufficiently staffed, so production would not be affected by any absenteeism. Furthermore, HFC provides its employees with efficient transportation to ensure that there is no delays.
Research and Development	Coping with state of the art technologies and production of ecological friendly products through our recyclable processes in light of the challenges facing the agriculture sector worldwide of increasing population.	●	●	●	The Research and Development Department at HFC is playing a vital role in addressing and studying all challeng-es that may rise in the industry and is always innovative to come up with solutions to ensure and efficient produc-tion process.

Stakeholders Engagement

The engagement with our stakeholders happens through a variety of traditional and innovative channels. Open and honest communication provides us with valuable insights regarding emerging trends, business risks, as well as opportunities.



Stakeholders	Communication Channel	Issues and Expectations	Response to expectations
Shareholders	Annual General meeting, information disclosures, annual reports.	Financial profitability & sustainable business growth.	HFC management follows effective planning and budgeting, efficient management system, continuous Performance monitoring, and maximizing resources utilization.
Board of Directors	Board meetings, various reports.	Financial efficiency, corporate governance, compliance with laws & regulations, risk management, safe and efficient operations, and sustainable business growth.	Effective planning and budgeting, Efficient management system, performance monitoring and reporting system, solutions to reduce costs, maximizing resources utilization.
Peers	Market research surveys, participation in biddings, direct contact through meetings, emails, and phone calls.	Responsible competition, Fairness and equal opportunities, transparency, Head hunting.	Transparent disclosure to boost the brand name, responsible competition principals. Mutual cooperation and support when needed.
Employees	Direct meetings, HR surveys, employees' conferences, special purpose meetings or interviews, direct phone calls.	Safe working environment, attractive benefits package, career path development, Training and development, Recognition and reward, employee and family well-being. Transparency and effective strategy and policies communication.	New health plans, updating HR Policy, Training and career development programs, Key-positions retention plan. Internal and abroad training programmes. Human resources data analysis system. Modernizing HR Oracle System.
Clients & customers	Daily operational contacts, scheduled meetings, regular operating reports, direct phone calls, emails.	Company profile, operating costs, quality of products, availability and quality of products.	Apply international standards in management and operations. Preventive maintenance plans to ensure continuous production, improving operation and sustain quality of products, 24/7 follow-up and monitoring system.
Suppliers and vendors	Public tenders, regular contacts, vendors registration and inspection process, mails, phone calls, direct meetings.	Transparency in bidding evaluation process, input prices, operation efficiency and profession, times required to provide service, long term relationship, on time deliveries, on time payment, compliance to rules and regulations, compliance with safety procedure, commitment to environment, human rights	Developing suppliers manual and Code of Ethics, tendering process that assures transparency and fairness, clear payment policy, professional and dedicated employees, strict policy toward human and labor rights.
Regulator and relevant governmental entities	Reports to/from gov. agencies, Direct meetings, inspections, Auditors reports, focal points.	Compliance with Laws and regulations, certifications, Licenses, contribution to national priorities, support community development.	Direct environmental monitoring from the MoE. HSE laws and regulations compliance, Third party quality inspections and certification (ISO 9001-14001, 45001, Accountability State Authority-ASA).
Local community, academia, and NGOs	Press releases, public events, direct meetings and arrangements.	Job opportunities, Training to relevant university students, socially responsible, environment friendly.	CSR activities, university students training programs. Various local community projects and contributions.

Material Topics

The fertilizers industry is a central pillar in the industrial and agriculture sectors of any country. It acquires its importance from many sources:

1. It is a national priority serving as products that supports the Agri-economy,
2. It supports food security,
3. The nature of raw materials used in the production process,
4. The risk factors associated with the production and operation,
5. The intensity of energy and resource used in production.

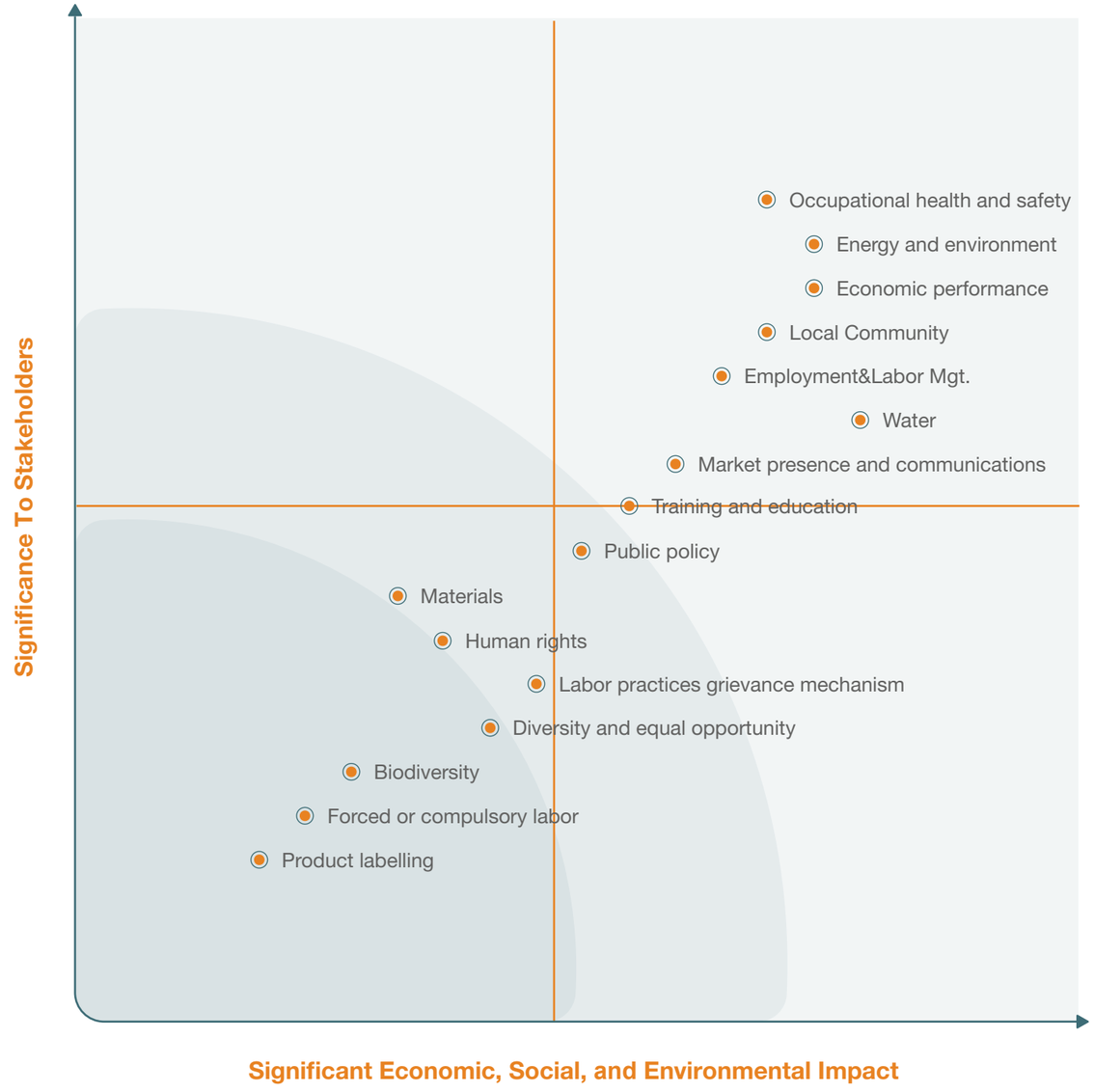
Therefore, the industry is directly related to the various ministries, regulatory authorities, agri-business, and the general public. At HFC, we successfully maintained our position as a leading Agri-products manufacturing and trading company since our inception. Our top priority remains the sustainable and inclusive development for the benefit of all our stakeholders. With this objective in mind, we have embedded responsible practices in all our business operations.

Material issues are those that have a direct or indirect impact on an organization's ability to create, preserve or disrupt economic, social, and environmental values for itself, its stakeholders, and the community in general.

HFC chooses to address the sustainability challenges such as climate change, economic performance, employee welfare, process safety, and social responsibility through various material aspects identified throughout an assessment process developed for this report. HFC sustainability ambassadors are certified as sustainability practitioners by the Global Reporting Initiative (GRI). These ambassadors supported and guided the materiality assessment process in alignment with the GRI guidelines. Since this is our first sustainability report, the assessment has been done internally through a structured engagement process with HFC staff at all levels (Top Management, Middle Management, and entry-level), and from all departments to act as proxies for all stakeholders. A third-party consultant also supervised the process. The material aspects identified and prioritized during the materiality assessment survey are listed below:

High	Medium	Low
1) Occupational health and safety	1) Public policy	1) Diversity and equal opportunity
2) Energy and environment	2) Materials	2) Biodiversity
3) Economic performance	3) Human rights	3) Forced or compulsory labor
4) Local Community	4) Labor practices grievance mechanism	4) Product Labeling
5) Employment &Labor Management		
6) Water		
7) Market presence and communications		
8) Training and education		

Material Matrix



HFC CEO" Eng. Hassan Abdel Aleem and Abu Qir CEO "Chemist Saad Abu El Maaty in his visit to Abu Qir Appraisal factory in Alexandria.

An Appreciation Testimony from Abu-Qir Fertilizers Company about our Prominent Relationship

Chairman Office

مكتب رئيس مجلس الإدارة والعضو المنتدب

شركة أبو قير للأسمدة والصناعات الكيماوية
Abu Qir Fertilizers and Chemical Industries Co.

Alexandria, 15th of November, 2020

Dear Eng. Hassan Abdel Aleem,
President & CEO
Helwan Fertilizer Company

On the occasion of publishing Helwan's first sustainability report, Abu Qir Fertilizers Co. has the pleasure to write a short statement that describes the long fruitful cooperation as follows;

"Helwan Fertilizers Company is considered sister company to Abu Qir Fertilizers as we own 17% stake in HFC.
Our companies have a long history of joint cooperation and working together to fulfill the needs of Egyptian farmers from Nitrogen Fertilizers necessary for agricultural production.
Our long relationship is a distinguished one; AFC always cooperates with HFC in many fields including: exchanging experiences, training, capacity building and achieving environmental compliance. Our companies also cooperate in several technical areas related to production mechanisms and spare parts management necessary for sustaining production processes as well as the mutual cooperation regarding future petrochemicals projects.
Finally, we can conclude by saying that Abu Qir Fertilizers and HFC are working together to achieve the principles of Sustainable Development Goals, especially the framework related to the provision of agricultural production requirements".

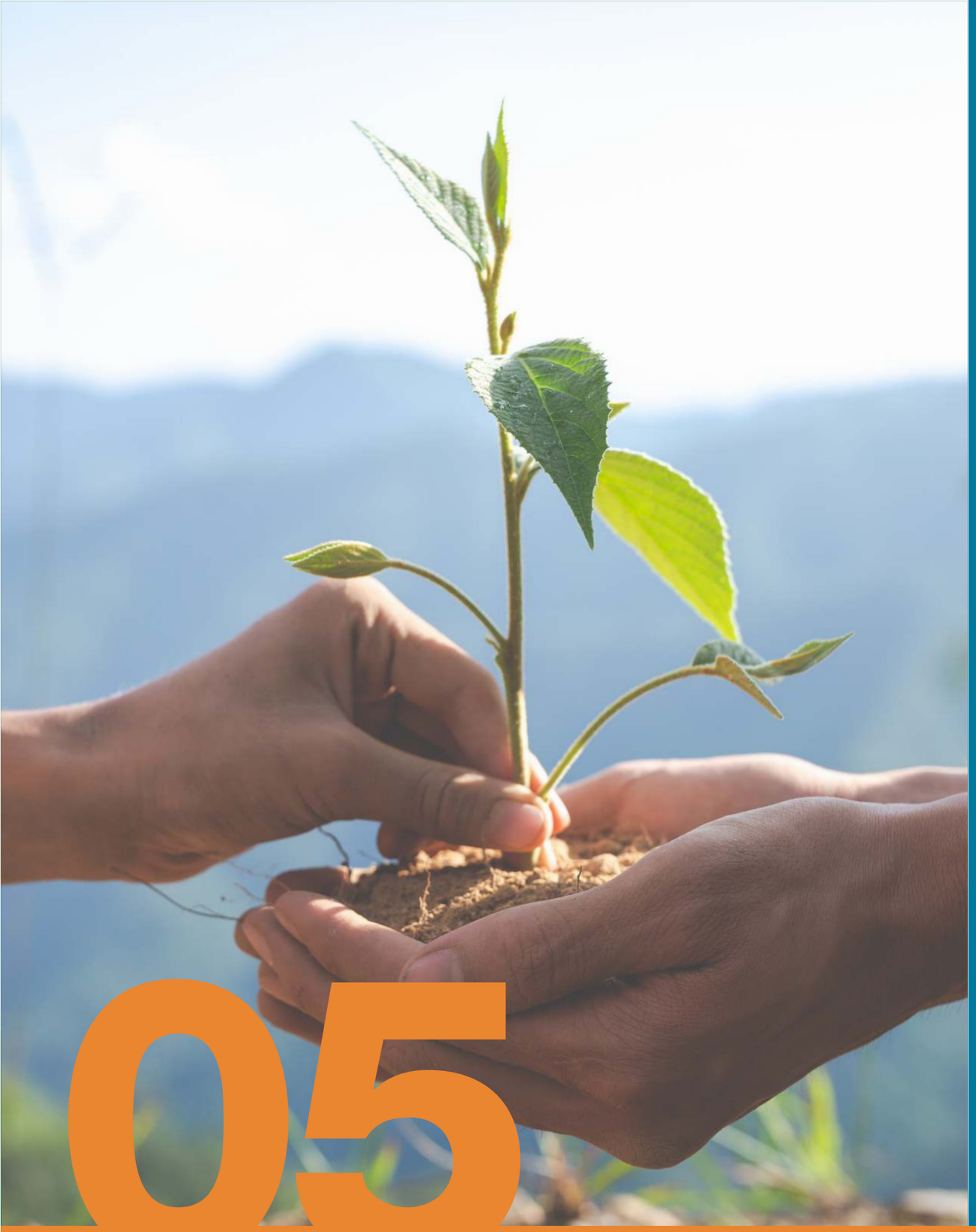
Thank You.
Best Regards,

Chemist / Saad Abu El Maaty
Chairman & CEO

ISO 9001 - ISO 14001 - ISO 18001 - ISO 17025 CERTIFICATES
الشركة حاصلة على شهادات أيزو ٩٠٠١ - أيزو ١٤٠٠١ - أيزو ١٨٠٠١ - أيزو ١٧٠٢٥

Plant : El-Tabia - Rashid road, Alexandria
Mailing Number 21911
Phone : (+203) 5603030 - Fax : (+203) 5603032
E-mail : chairman@abuqir.com
www.abuqir.com

الإدارة والمصانع :
الطابية خط رشيد - إسكندرية
الرقم البريدى : ٢١٩١١
تليفون : ٥٦٠٣٠٣٠ (٠٣+)
فاكس : ٥٦٠٣٠٣٢ (٠٣+)



05

HFC Contribution to the SDGs and SDS

HFC Contribution to the SDGs and SDS

Ahmed Shaaban

Sustainable Development

I am honored to be the Manager of the sustainability ambassadors' team who was responsible for issuing this report this year and many years to come. From my humble opinion Helwan Fertilizer Company "HFC" is serious in taking all the steps to be on the sustainability front and taking the step to issue our first sustainability report is the clue. By issuing its first Sustainability Report, HFC is sharing its notable Environmental, Economic and Social performance with all stakeholders. It presents how we are complying with national and international environmental regulations, our contribution to local economy, our share value growth, and the opportunities that HFC offers for its neighborhood, employees and the social benefits it creates for them. In this report, we are telling our story towards creating a sustainable world and keeps our company focus on track during adverse times and helps us fighting the eternal battle between commercialization and values. Finally, I am proud to say that HFC values support every employee in conducting our business in a socially, ethically and environmentally responsible manners.

The Crucial Role of Plant Nutrition in The 2030 Sustainable Development Agenda & Egypt Vision 2030

In addition to light, carbon dioxide and water, plants need essential nutrients to grow, which can come from the soil and organic and mineral fertilizers. Mineral fertilizers contain concentrated, consistent and readily available nutrients, and enable farmers to grow more on less land. Without them, world agricultural production could fall by as much as half and it would not be possible to feed the global population. Plant nutrients achieve more than food security: they play an important role in achieving several of the Goals of the 2030 Sustainable Development Agenda. Find out below how they contribute to SDG Goals and Egypt 2030 vision.

Goal 1: No Poverty

> Farmers are the engine of food supply in the world, yet a large proportion of them lives in poverty. Lifting them out of this poverty by increasing their access to inputs, technology, services and markets is our most important challenge for this century.
>
> Dr. Theo de Jager, Chairman, World Farmers' Organization

- Adequate and affordable access to fertilizers allows subsistence farmers to produce a surplus that they can sell, using the income not only to provide their families with food, but also provide their children with quality education and health care.
- The impact of fertilizers is immediate: within a single cropping season, and with the adequate use of other crop inputs (e.g. water), farm productivity can be doubled or even tripled. For every 1 kg of nutrient applied, farmers obtain 5-30 kg of additional product.

Goal 2: Zero Hunger

> Food is the moral right of all who are born into this world (…) This is a basic problem, to feed 6.6 billion people. Without fertilizers, forget it. The game is over.
>
> Dr. Norman Borlaug, Nobel Prize Winner and Father of the Green Revolution, 2008.

- Half the food we eat today is produced thanks to mineral fertilizers. Fertilizers provide crops with the nutrients essential for their growth and health, which help increase crop yields and food production.
- The agricultural sector needs to increase its productivity by 60% compared to 2005 levels to meet the increasing demand for food. (FAO, 2012) This must be accomplished in the context of the shrinking availability of arable land. Achieving global food security today and in the future cannot be achieved without fertilizers.
- Micro-nutrient-enriched fertilization is considered one of the most promising ways to fight malnutrition, and alleviate nutrient deficiencies worldwide, especially for zinc, selenium and iodine.
- When applied according to Best Management Practices, fertilizers, both mineral and organic, can fulfill their primary function of providing plants with consistent and easily available nutrients more efficiently, while the risks of losses and the adverse effects of their over, under or misuse are minimized.
- Fertilizers contribute to better nutrition for all through micro-nutrient fertilization.

> In addition to yield, plant nutrition affects other important components of human nutritional needs, including the amounts and types of carbohydrates, proteins, oils, vitamins and minerals. Many of the healthful components of food are boosted by the application of mineral nutrients.
>
> T. Bruulsema, P. Heffer, R.M Welch, I. Cakmak and K. Moran. Fertilizing Crops to Improve Human Health: A Scientific Review. 2013.

Goal 3: Good Health and Well-Being

- Good nutrition directly translates to good health and well-being. If individuals are provided with a well- balanced and healthy diet at the early stages of their life, they would be able to lead a healthy and bright future. Fertilizers directly increase the availability of different sources of nutrients as fruits and vegetables, which are the raw materials needed to lead a healthy life.
- Aside from producing urea fertilizer, which increases the availability of nutrients, HFC has also spent a huge percentage of its CSR budget on improving the healthcare provided to the most vulnerable segments within the Egyptian society. This was implemented by equipping the hospitals and healthcare centers with the needed supplies and equipment, directly paying the cost of operations for sick individuals from the surrounding local communities, while securing the health and well-being of HFC's employees and their families, among other many initiatives. To know more about HFC's role in supporting good health and wellbeing, please visit the CSR section.

Goal 4: Quality Education

- Equal and quality education supports economic growth, public health, and social inclusion.
- HFC promotes science education through philanthropic investments and specific initiatives that target certain regions or populations, including technical apprenticeships and programs which help improve the professional skills of existing and potential employees. To know more about HFC's effort to support quality education, please visit our CSR section (insert hyperlink for CSR Section here).

Goal 5: Gender Equality

> It is critical that governments commit to addressing the gender gap if we are to have a food secure Africa. Closing the gender gap should be viewed as a business priority and an economic imperative.
>
> Dr. Lindiwe Majele Sibanda, Vice- President of the Alliance for a Green Revolution in Africa (AGRA)

Fertilizers industry supports gender equality in agriculture, as it brings female farmers to the same level as their male counterpart.

- Improving women's access to fertilizers could feed a further 150 million people, according to the FAO.
- Although HFC is currently male dominated, the administration is currently hiring more female employees to decrease the gender gap and provide women with more professional development opportunities.

Goal 6: Clean Water and Sanitation

> The sustainability of a business depends on its capacity to anticipate, analyze, understand and address an issue or a crisis, such as the increasingly limited availability of water. Fertilizer producers are tackling this challenge head-on and have implemented measures on their production sites that have already resulted in substantial water savings worldwide.
>
> Dr. Lindiwe Majele Sibanda, Vice- President of the Alliance for a Green Revolution in Africa (AGRA)

- Nutrient losses to water can be significantly reduced with Fertilizer Best Management Practices.
- Ensuring the proper placement of the fertilizer source close to the plants' roots to optimize its uptake (right place) and scheduling fertilizer application according to regional climate and weather conditions (right time) have proven to be very efficient methods to reduce nutrient losses to water beds. (IFA, 2018)
- The sustainable management of water is a priority for HFC. We work hard to monitor and adjust our water use to ensure that losses are minimized while recycling and reuse are maximized.

Goal 7: Affordable and Clean Energy

- HFC is continuously improving energy efficiency in its facilities, and the company manufactures products that help to improve efficiency for downstream costumers and users as well.

Goal 8: Decent Work and Economic Growth

- The safe production and management of fertilizers is crucial to economic growth and enhancing quality of life for people globally. Innovation provides business opportunities and a sustainable foundation for economic growth.
- Upholding labor standards and respecting human rights throughout HFC's operations and the entire value chain represents a substantial opportunity to advance human development.

Goal 9: Industry, Innovation & Infrastructure

- The manufacture of fertilizers is becoming ever more efficient thanks to Best Available Technology (BAT) and innovation on plant sites.
- Technological advances in agricultural production, nutrient and water management have enabled significant gains in fertilizer application efficiency and reduction of nutrient losses to the environment.
- At HFC, we continuously update our facilities and machinery and use the latest available technology to ensure an efficient production process that maximizes our shared value.
- Through our different training programs, we equip our employees with the latest known techniques in the industry which increases innovation and develops our production process.

Goal 10: Reduced Inequalities

- The global chemical industry is a USD $ 4 trillion business affecting virtually every sector of the economy.
- Worldwide, more than 20 million people are employed directly or indirectly by the industry.
- HFC advocates for equality and provides investments to encourage development and reduce inequality.
- HFC has adopted many policies that support equality such issues as fair wages, safety and ethical standards, and social protection.
- Through our philanthropic activities in the healthcare sector, educational sector, infrastructure investments, sports sector, and other projects, we bridge the gaps between individuals in the society, and provide the most vulnerable in the society with better opportunities to flourish and live a better life that ensures a good education,
- proper healthcare, and good living standards.

Goal 12: Responsible Consumption and Production

- HFC ensures throughout the entire production process that minimal waste is created, the least amount of energy is used, and even after the production process is complete, waste is collected, segmented, and then recycled.
- Electronic devices as machinery and computers are regularly maintained to ensure that they live for a long period of time, and even when they are no longer performing, they are used as spare parts or sold as e-waste. To know more about this process, please visit the Digitization section.

Goal 13: Climate Action

> There are clear opportunities for Fertilizer Best Management Practices projects to complement national climate change mitigation strategies. They can help policy makers understand fertilizer -related emission trends, and associated mitigation options that can deliver on targets such as those of the Paris Agreement.
>
> Dr. Clare Stirling, Senior Scientist with the Global Conservation Agriculture Program, CIMMYT (International Maize and Wheat Improvement Centre).

- Fertilizers contribute to climate change mitigation through preventing deforestation and increasing soil carbon sequestration.
- Improved agricultural practices, such as Integrated Plant Nutrient Management (IPNM) (which entails using on-farm organic sources of nutrients and supplementing them with manufactured fertilizers) lead to higher Soil Organic Matter (SOM) which improves not only soil health and productivity but results in more CO2 sequestration. This is very important as soils represent 89% of agriculture's mitigation potential.
- Fertilizers can help farmers adapt against climate change: Healthy soils and plants can better withstand climate stress than those with nutrient deficiencies. Fertilizers can considerably increase crops' resilience to climate change when applied following best management practices.

Goal 14: Life Below Water

> Few industries have the ability to address not only one but a variety of environmental problems. The fertilizer industry (…) has a unique capacity not only to support food security but cleaner oceans, human health and the fight against climate change.
>
> Ibrahim Thiaw, Deputy Head of UN Environment

- Nutrients can make their way to seas and oceans through the same loss pathways that carry them to streams, lakes and rivers: for instance, heavy rainfall or improper soil and crop nutrient management practices. In addition, losses to the atmosphere are often followed by deposition onto oceans.
- By improving the management of plant nutrients from all sources on land, losses to seas and oceans can be considerably reduced, and negative phenomena like eutrophication or hypoxia can also be reduced in coastal areas.
- Fertilizer Best Management Practices can help preserve the health of seas and oceans: The 4Rs (Refuse, Reduce, Reuse, and Recycle), can substantially improve the uptake of nutrient by plants, and thus reduce losses to water streams, and by extension, seas and oceans.

Goal 15: Life on Land

> Soil is important; soil is threatened; it is time to take soil seriously. In the same way that food plays a role in human nutrition, fertilizers and soil fertility play such an important role in soil health. The two go completely hand in hand.
>
> Chris Lambe, Director Strategic Initiatives, Agriculture and Food Security Center, The Earth Institute at Columbia University.

- Desertification refers to the extreme degradation of land in arid, semi-arid and dry sub-humid areas, primarily caused by human activities and climatic variations. Although several regions are concerned by this phenomenon the most dramatic examples of desertification are found in Africa, where declining soil fertility is linked to declining agricultural productivity.
- Traditionally, methods for restoring soil fertility entailed long fallow periods and shifting agriculture to new areas. However, these practices no longer suffice to meet the needs of the current and future population levels, and have raised serious environmental concerns, such as deforestation, as people tried to expand arable land.
- Fertilizers have an important role to play in combatting desertification, as they restore and maintain soil health and fertility.
- Integrated Soil Fertility Management (IFSM), a holistic approach to enhancing plant nutrient uptake (from the selection of crop variety to the biological and physical dimensions of soil health, and adapting practices to local conditions), is key to achieve this.
- ISFM incorporates Integrated Plant Nutrient Management (IPNM), which also plays a central role in maintaining soil health: it entails using on-farm organic sources of nutrients and supplementing them with manufactured fertilizers to achieve the farmer's yield goal.
- IPNM allows for the best use of both organic and mineral fertilizers. Organic sources provide nutrients, and soil organic matter that improves soils' health and ability to retain water, and mineral fertilizer complement them with more concentrated, consistent and readily-available nutrients to plants.
- IPNM has also proven to be the best method to sustainably increase yields on available arable land , and thus also has the potential to prevent further deforestation.

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- IPNM has also proven to be the best method to sustainably increase yields on available arable land , and thus also has the potential to prevent further deforestation.
- Fertilizer best management practices help adapting to a water-scarce environment : Fertilizers added to irrigation water through a method called “fertigation” can make it possible to synchronize crops’ nutrient requirements with fertilizer through their growth cycle, and address the rate, time and place dimensions of nutrient stewardship, while reducing overall water consumption due to precise placement and timing when using micro-irrigation systems.
- Often, water and nutrient management are addressed separately, although they are intimately linked. Improvements in nutrient use efficiency should not only be seen as a fertilizer issue: plant nutrients and water are complementary inputs, and the most limiting will constrain plant growth response to water and nutrients.

> “Fertilizer best management practices help adapting to a water-scarce environment. The introduction of well-tested and efficient fertigation techniques into the world will help turn vast areas of desert soils into productive agricultural areas as well as saving precious water from being wasted in conventional agricultural systems.
>
> Chris Lambe, Director Strategic Initiatives, Agriculture and Food Security Center, The Earth Institute at Columbia University.

- The soil water content is the single most important factor controlling the rate of various processes in soils that influence nutrient cycling, flows and availability to plants. Similarly, poor soil fertility limits the ability of plants to efficiently use water.
- Fertilizers added to irrigation water through a method called “fertigation” can make it possible to synchronize crops’ nutrient requirements with fertilizer through their growth cycle, and address the rate, time and place dimensions of nutrient stewardship, while reducing overall water consumption due to precise placement and timing when using micro-irrigation systems.
- Fertigation has tremendous potential in maximizing yields while minimizing environmental pollution, that could help turn areas of arid and semi-arid land in many parts of the world into farmland, as well as preventing water from being wasted in conventional irrigation systems

Goal 16: Peace, Justice, and Strong Institutions

- HFC is focused on maintaining standards of ethical business conduct throughout its value chain. This is achieved through partnerships that allow us to reduce corruption wherever it may exist in the supply chain.
- HFC also engages with local, regional, and international bodies on societal structures and laws to promote responsible business practices including anti-bribery and anti-corruption.
- HFC has zero tolerance for corruption, and it is written in our code of conduct. If any case of corruption is identified or reported, the administration immediately takes the corrective action needed.

Goal 17: Partnerships for Goals

- HFC works with multiple local NGOs and civil society organizations to create a better future for the most vulnerable segments of the society. To know more about these initiatives, please visit our CSR section.

Training is our Future

06

Our Value Created: Products

Fertilizers Manufacturing

HFC produces more than 1,200 tons per day of Ammonia, most of which are used in producing 1925 tons of Urea per day. About 40% of Urea is supplied daily to the Ministry of Agriculture at a price close to the cost of production to support the Egyptian farmers and the rest are exported abroad to support the country's economy with foreign currency. In 2019, we have exceeded the design capacity of production due to the stability in Natural Gas supplies and the vigilance of workers and their desire to achieve the maximum productivity possible while maintaining the safe operation of equipment.

Granulated Urea

Analysis	Unit	Specification
Nitrogen	wt %	46 % Min.
Biuret	wt %	1% Max.
Moisture	wt %	0.5 % Max.
Granulometry	wt %	(2- 4 mm) Min 90 %. (2- 4.5 mm) Min 95 %.
Crushing Strength	Kg	3 Min.

Anhydrous Liquid Ammonia

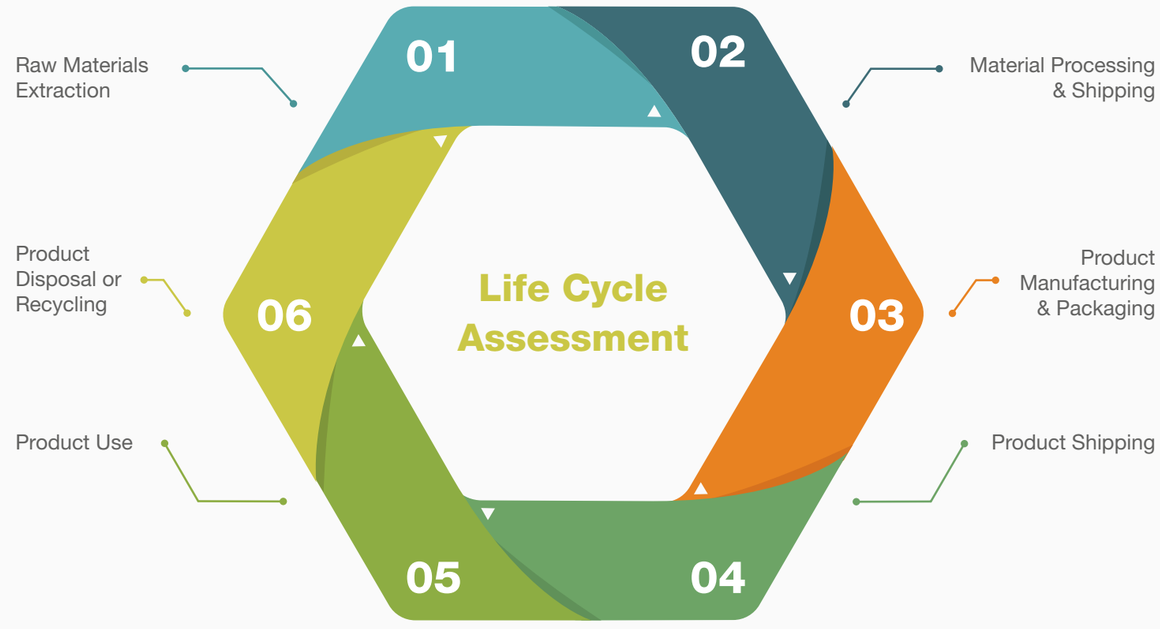
Analysis	Unit	Specification
Purity	wt %	Min. 99.80
Water	wt %	Max. 0.10
Oil	PPM	Max. 5

Liquid Nitrogen

Analysis	Unit	Specification
N2 Purity	wt %	99.99
Oxygen Percentage	PPM	<10

Life Cycle Assessment of our Urea Production

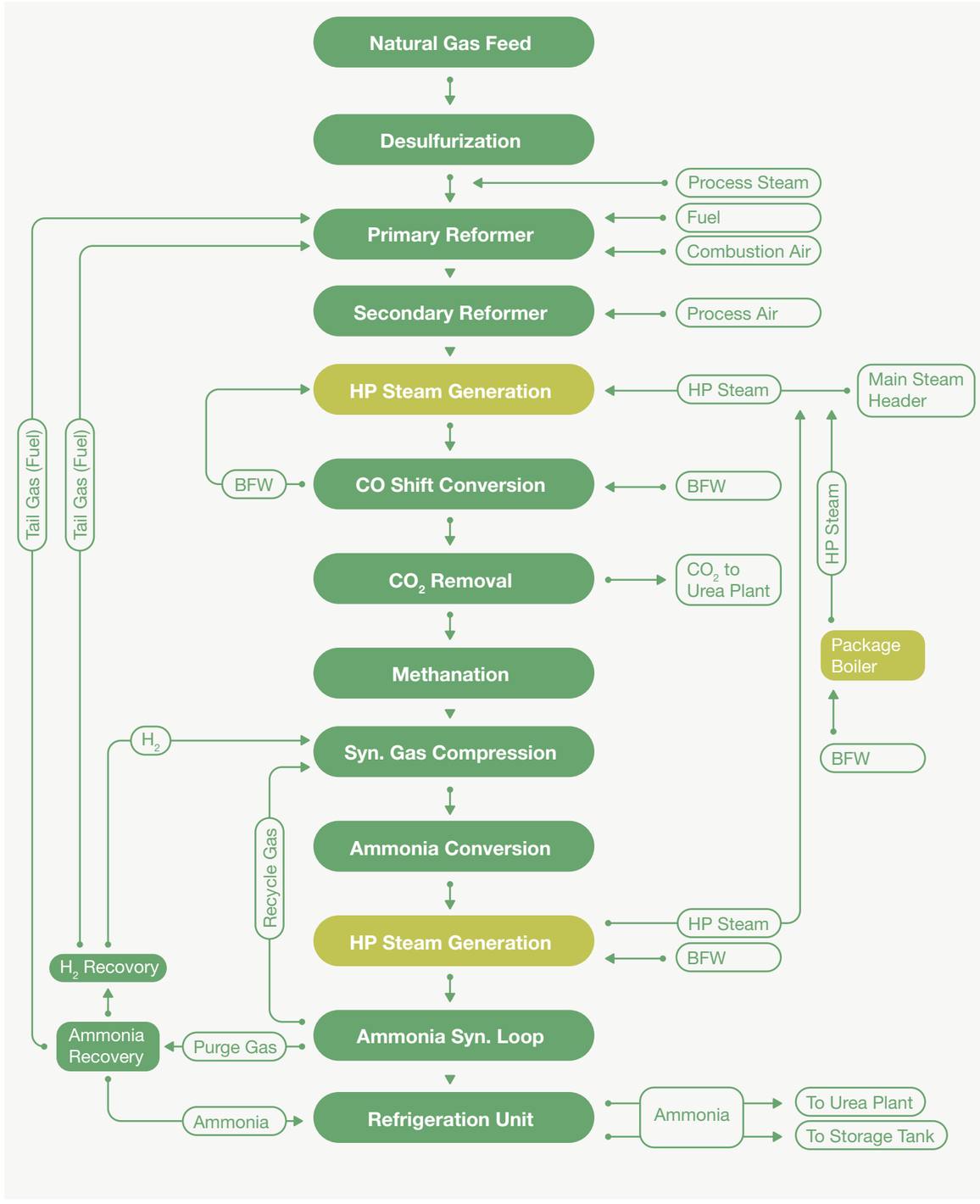
HFC is working on carrying out a Life Cycle Assessment study for Urea Production from cradle to grave including raw ma-terial inputs, energy use, emissions to air and water and waste generation. The LCA Study covers the four main phases of LCA as outlined in the International Standards ISO 14040:2006 and ISO 14044:2006. Urea is an important nitrogen-rich organic compound, which was initially produced via the use of inorganics. In HFC urea factory, urea is synthesized from synthetic ammonia, which is produced from natural gas (NG) with other materials, and CO2. The production routines main-ly involve the ammonia synthesis process and urea synthesis process including desulfurization, conversion, purification, ammonia synthesis, ammonia recovery, ammonia compression, urea synthesis, decomposition and recirculation, evapora-tion & urea concentration, granulation, and dust recycle etc.



1 Goal and Scope Definition

The main objective of our LCA study is to identify the potential hotspots for energy and emissions reduction along the production chain of Urea. The Functional Unit of our study is 1 ton of Urea delivered to Market. The life cycle of urea production in HFC is divided into three stages: the materials preparation stage, synthesis stage, and waste-treatment stage. In the materials preparation stage, natural resources are extracted and transported to the urea plant as raw materials. In the synthesis stage, the intermediate material ammonia is synthesized using natural gas at first and then used to synthesis urea with CO2. In the waste-treatment stage, waste gas, water, and residues are disposed of in several ways.

Ammonia Manufacturing Process

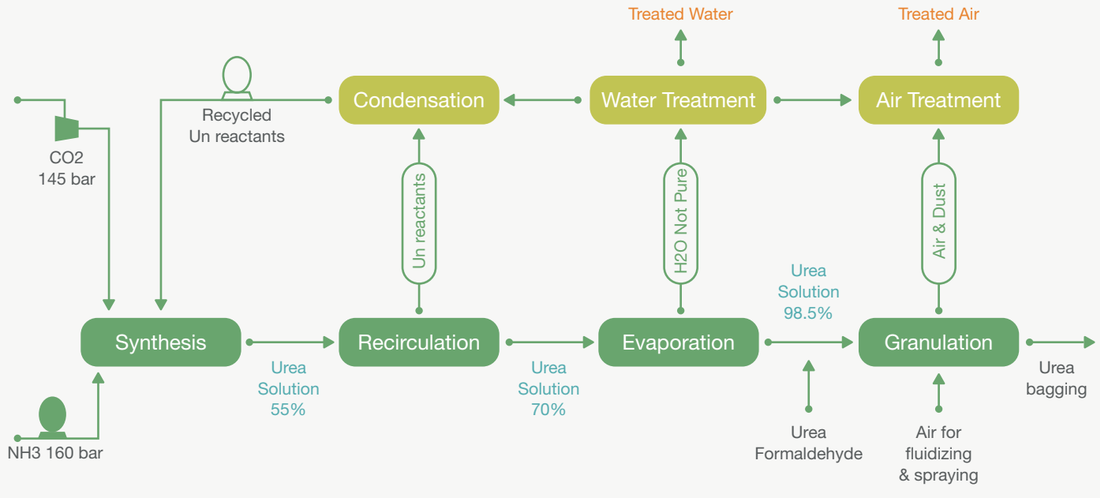


Gate to Gate Urea Synthesis Stage

In addition to administrative buildings, the HFC factory consists four main units: Ammonia plant, Urea Plant, Utilities, and Support buildings (4 warehouse buildings, 2 workshops). Our main product is UREA. It is an organic compound produced by the reaction of ammonia and Carbon Dioxide at high pressure to produce an intermediate compound called Ammonium Carbonate, which decomposes to produce Urea in a liquid form. The concentration of Urea solution is gradually increased within the units by separating and evaporating the water content before directed to the granulation unit to produce granulated Urea. Urea contains the most significant nitrogen percentage among all solid fertilizers, with Nitrogen percentage reaches 46.6%. Ammonia and Carbon Dioxide are produced in our ammonia plant. Ammonia (NH3) is the main raw material used in the manufacture of all types of nitrogen fertilizers. Ammonia is produced by converting natural gas to hydrogen through a catalytic reaction, and the steam and air are used to complete this process, and nitrogen existing in the air is also used as a natural source of nitrogen needed to produce ammonia. Ammonia production is carried out in several phases from the phase of hydrogen production to purification of the hydrogen and nitrogen mixture of water and associated Carbon Dioxide and then separation of carbon dioxide to the conversion of the hydrogen and nitrogen mixture to ammonia through catalytic reaction under certain conditions. Ammonia is produced in a gaseous form where it is gradually cooled up to -30 oC to turn into liquid ammonia at atmospheric pressure to be kept in a storage tank with particular specifications extended by a refrigeration unit to maintain proper storage conditions. 90% of the ammonia produced in the factory is used in the production of granular urea, and the excess ammonia is marketed in the local market. Daily Production of Ammonia is 1200 tons Daily (1100 to Urea and 100 to 150-ton Sale to Local Market). Our packaging system has eight lines for 50 kg, 1-ton Mega Packages, and Bulk loading to containers or trucks. Six lines are found for 50 kg packages, 2 lines for one-ton packages, and one line for bulk sale.

Urea Process Block Diagram

Technology and operational license of urea synthesis and urea granulation especially of Stamicarbon.



Production System Boundaries

This LCA study is cradle-to-grave. In accordance with the PCR 2010:20 Mineral or chemical fertilizers (Version 3.0) of the EPD International System, the following stages are included within the system boundary: product stage (raw material extraction and processing, transport to the manufacturer, and manufacturing, transport for use, and application to field). Elements that are excluded from each system's boundary include the following:

- Construction activities
- Capital equipment
- Infrastructure
- Maintenance and operation of capital equipment
- Personnel travel and resource use.

The excluded elements from these process is not expected to significantly change the overall conclusions of the study. A general description of each life cycle stage, in accordance with the PCR, is provided below.

Raw Materials and Processing (Sourcing/Extraction) stage

This stage includes extraction of virgin materials and reclamation of non-virgin feedstock. This includes the extraction of all raw materials, including the transport to the manufacturing site. Resource use and emissions associated with both extraction of the raw materials product component manufacturing are included.

Transport stage

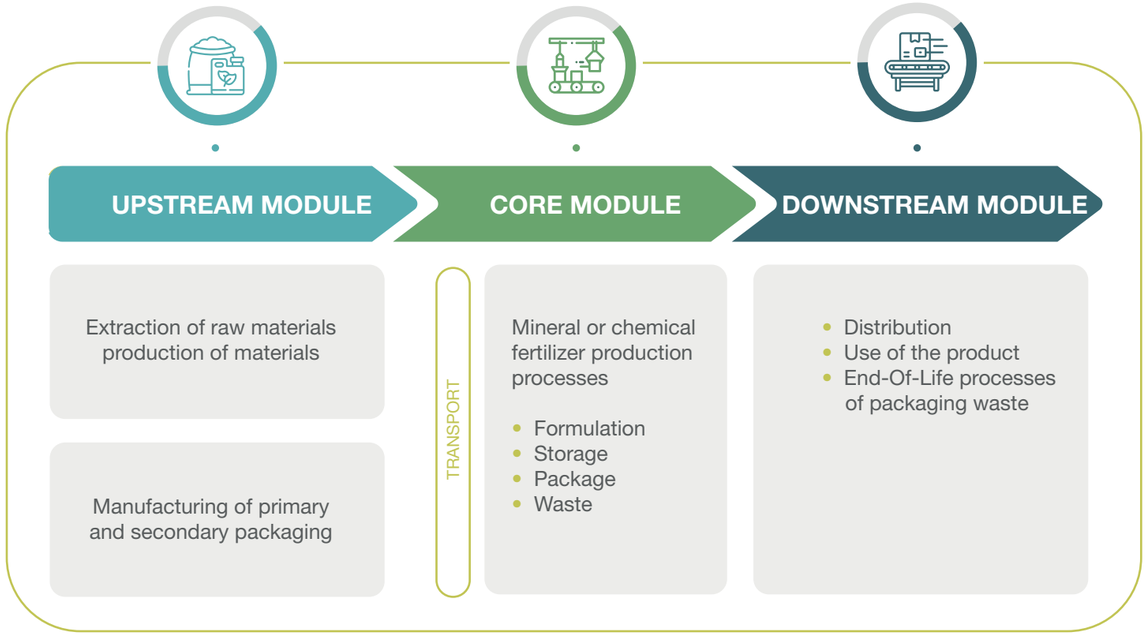
The impacts associated with the transport of the processed raw materials to the manufacturing facility are included in this stage.

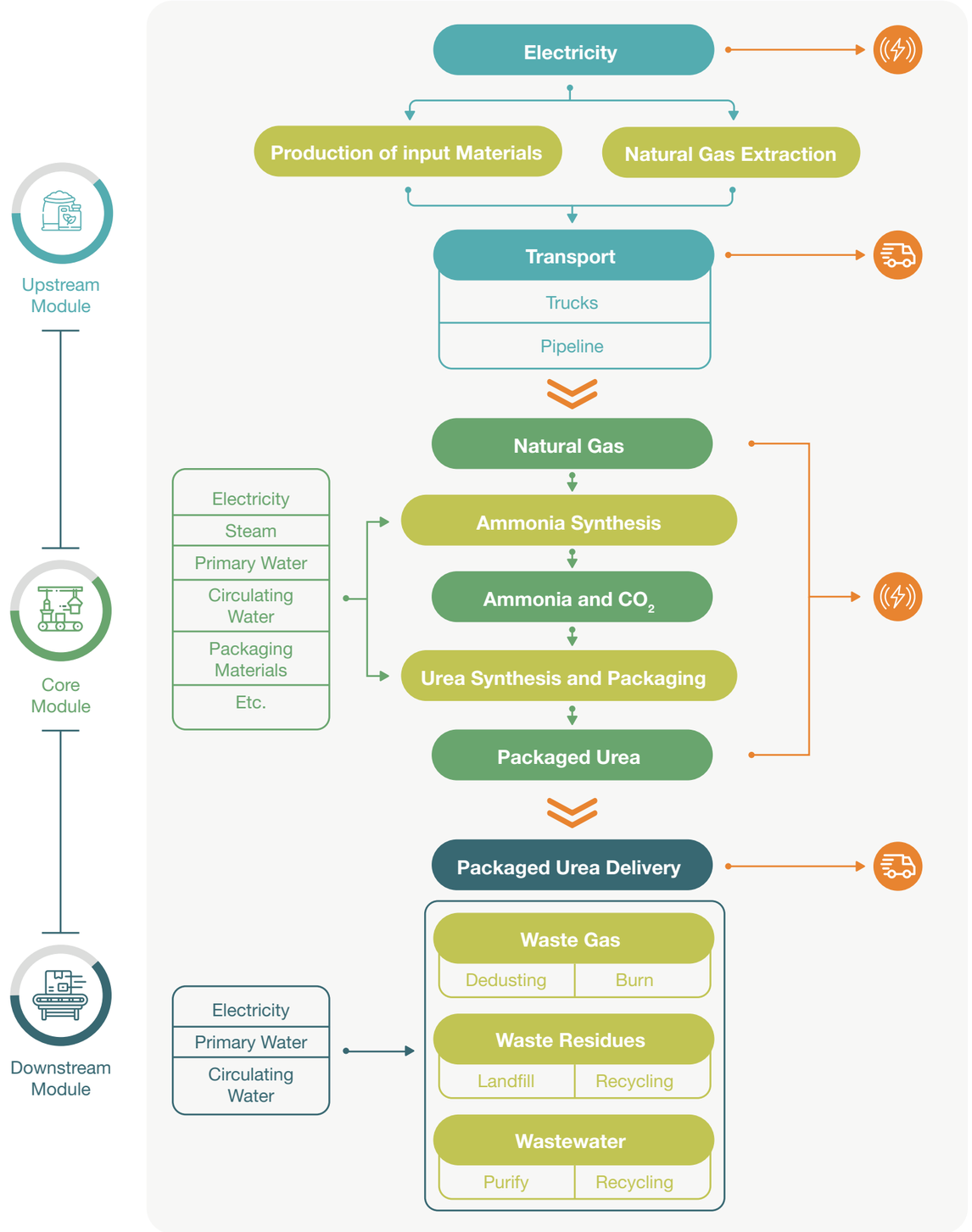
Manufacturing stage

This stage includes all the relevant production processes and flows, including the impacts from energy use and emissions at the facility. Production of capital goods, infrastructure, manufacturing equipment, and personnel-related activities are not included. This stage also includes the production of packaging and ancillary materials.

Delivery and Application stage

This stage includes delivery of Urea to the fields where it will be used (downstream transportation) and application in the field. This stage also includes the disposal of packaging materials. Urea use stage includes environmental aspects and impacts arising from application of the fertilizer, field operations and emissions directly after fertilizer application in the field.





- Flow diagram representing the major processes in the life cycle of Urea.

❷ Inventory Analysis

Currently, we are collecting raw material and energy, emissions, and waste data. This data will be used to calculate the total emissions from the system. The Inputs and Outputs of each Unit Process are used to calculate the life cycle inventory of the system. The life cycle inventory calculations will include every possible energy and material input and all possible emissions to establish credible results. Data quality is an important aspect of LCA. During inventory analysis the ISO 14040 and ISO 14044 Standards instructions will be followed for maintaining the data quality.

❸ Impact Assessment

In this step HFC will assess the impacts of production activities under investigation. The LCI data is utilized to find out the affected areas. The LCI data will be analyzed in a two-step process:

Classification

The impact categories are established and LCI data is analyzed to mark the data and calculate the values of emissions corresponding to each category. The impact categories are based on the evaluation method utilized. As example, some of the categories are GWP, acidification, human toxicity, etc.

Characterization

This step groups the data in respective impact categories. Characterization step is used to evaluate the relative contribution of each type of emission to these impact categories.
Some of the baseline impacts that will be included in our study are as follows:

- Depletion of Abiotic Resources
- Human Toxicity
- Ozone Depletion
- Global Warming

Normalization and Weighting

The emissions are normalized corresponding to a standard and converted into a score system. The total score is utilized to identify the methods and processes of concern.

❹ Interpretation of Results and Improvement

In this step HFC will identify the gray areas of the Urea production system and highly polluting processes where cleaner alternatives can be introduced. LCA can identify critical phases where process changes could significantly decrease impacts.

Benefits of LCA

By carrying out LCA Study, HFC is aiming at sustaining its existence because:

- LCA is an analytical tool with a methodology recognized by ISO Organization that can support decision-making, **highlighting efficiency opportunities** along a value chain of its production system.
- LCA provides a “what if” mechanism to **optimize the product/service life cycle** and “minimize” energy and environmental emissions along the value chain.
- LCA helps to **identify “trade-offs”** and ensure that changes in one part of the process (or formulation of a product/ a service) do not result in a higher footprint (or higher energy usage or more emissions) in another part of the process.
- LCA could **help optimize investments in Research and Development.** The use of LCAs to examine a variety of inputs, formation, or process changes in new product/service development saves time and expense before a final decision is made.
- **Benchmarking environmental emissions** is a great output from an LCA. Whether it is the amount of air emissions that contribute to global warming or GHG emissions, water effluents, amount of solid waste generated after the product is used, or energy usage throughout the product/service life cycle is a key feature of an LCA.
- LCA serves as **the basic methodology for Environmental Product Declarations** (EPDs). An EPD is a marketing tool that disclosed the life cycle environmental performance of products and services and known as Type III eco label.
- LCA provides the basis for a new generation of environmental foot-printing initiatives such as carbon footprint studies, water footprint studies, that focus on a more specific category than the full scope of an LCA.

The main targets of operations in HFC are:

- Safety of Personnel
- High operational performance
- Protecting Environment
- Maintaining security

The Cooperation between departments in HFC is remarkably high and that what makes HFC special.

Spare parts and equipment are mainly from USA and Western Europe to Keep the High Quality of our products.

HFC was the first fertilizer company to be linked with the national monitoring network of Industrial emission of EEAA (Egyptian Environmental Affairs Agency).

Conserve Energy to Preserve Future

Energy is the heart of our industry as the industrial sector uses more energy than any other sector. In industry, energy saving is achieved by management, technologies, policies, and strategies. Since April 2016, HFC has started an ambitious plant-wide Energy Saving project, under the Planning & Follow-Up Department, that aims at setting the energy-saving strategies and policies required to bring its energy saving to the uppermost level. The department works with other departments such as Production, Maintenance, Maintenance Planning, HR, and Quality Assurance departments to carry out several energy-saving tasks such as energy consumption monitoring, energy audit, training programs, and housekeeping. At HFC, energy consumption reports are issued daily, weekly, monthly, quarterly, half-year, and annually .

Energy Management Assistance

Since April 2019, HFC is working with national, regional and international stakeholders, such as the Regional Center for Renewable Energy and Energy Efficiency, RCREEE, Ministry of Environment, and the United Nations Industrial Development Organization, UNIDO, in the Energy Management Assistance (EnMA) Service Project under the Industrial Energy Efficiency Fund. The EnMA Service included Company Self-Assessment, building in-house energy team, identify the scope and boundaries, energy policy, and review the energy consumption in the company. The top management assigned an in-house energy team (EnT) with authority to implement and conduct the EnMS in accordance with the EnMA manual under the guidance of the short-term experts in the project. The EnT is considered as the first step towards changing the energy performance culture in HFC. The primary responsibilities of the EnT in HFC are:

- Ongoing monitoring and reporting on energy use, energy cost through the use of appropriate energy measurement, monitoring and analysis tools and systems.
- Benchmarking performance, identifying exceptions &initiating corrective actions.
- Communicating with staff to encourage all employees to be energy aware and play their part.
- Providing support and advice to staff.
- Identifying and implementing opportunities for reducing energy consumption.
- Complying with the relevant regulatory requirements, keeping up to date with new technical developments and identifying sources of external funding for energy efficiency investment and support.
- Specifying energy efficient features in maintenance operations, plant replacements, building refurbishments and in new builds. Approval of equipment purchases from an energy efficiency perspective.

- Ensuring that the EnMS is established, implemented, maintained and continually improved.
- Creating action plans and reviewing it with the top management implementing action plans to continually improve energy performance.
- Reporting on the performance of the EnMS and improvement of energy performance to top management at determined intervals. The issued report identified the problems that cause high energy consumption in the factory and their locations. The company also, held a training on energy saving for the staff.

EnMA Service-Phases

01 The Preparatory Phase → 02 The Planning Phase → 03 The Implementation Phase → 04 The Reporting Phase

EnMA Service Manual

The Preparatory Phase

- Introduction of the EnMA.
- Formation and training of the EnMA team.
- Assessment of the facility energy performance.

The Planning Phase

- Energy data collection & analysis.
- Identification of the SEUs.
- Identification of EnBs & EnPIs.
- Identification of energy saving opportunities.

The Implementation Phase

- Measurements of the missing data.
- Technical & financial analysis for energy savings opportunities.
- Action plan.

The Reporting Phase

- Readiness Assessment for ISO 50001.
- Final Report.

Energy Saving Opportunities

The project has identified about 17 Energy Saving Opportunities and classified them, based on the cost of implementation, into three classes:

1. Low or No Cost
2. Medium Cost
3. High Cost

Of these opportunities HFC selected to work on applying energy saving action to the Ammonia, Urea & Utilities. These opportunities will be used by the company in its preparation to be qualified for ISO 50001- Energy Management Systems Standard Certification.

Operational Risks

Urea manufacturing in HFC is a close process, which make it safe and clean. The first contact between our worker and the product is when it is finished and ready for shipment. However, there are several risks that we are managing.

Section	Risks	Prevention/Mitigation measure implemented in HFC
Ammonia and Urea Operational Risks	1. Toxic Release of Ammonia	1. The Toxic release impacts is controlled by adopting planning preventive maintenance and the Emergency Drill
	2. Blast Over Pressure due to VCE of hydrogen	2. Hydrogen Removal Unit is working in the feed line of CO_2 to eliminate hydrogen content in the CO_2 goes to Urea Plant so HFC keeps the unit operation condition in the optimum.
	3. Ammonia Vessel Blast	3. Mechanical and electrical maintenance for safety valves and its electrical circuits"if found" and Inspection Preventive Mechanical maintenance every turnaround to measure the wall thickness.
	4. Electricity Power Supply Failure	4. There is a parallel system is working between the National electricity network and Electricity Steam Generator after that there is emergency power supply for emergency works
	5. Fire and Explosion Due to Mixture of Hydrogen, Nitrogen & Ammonia Caused by Failure of Pipeline.	5. Inspection Preventive Mechanical maintenance for the lines to prevent the action.
	6. Welding Failure of CO_2 Stripper of Urea Plant.	6. Inspection Preventive Mechanical maintenance every annual turnaround to check Stripper welding, Tubes thickness and walls (and also for all HP equipment's).
	7. Ammonia in The Process Water.	7. Hydrolyser and Desorber systems for recovery of Ammonia from process water stream in Urea plant to purification purpose.
	8. Failure of Reformer Tubes and Valves.	8. Inspection Preventive Mechanical maintenance every turnaround to measure the tubes thickness.
	9. Raw Water Supply	9. HFC connect to the national water network through two private separate lines.
Maintenance Operational Risks	1. Frequent equipment failure or malfunctions.	1. Combining regular properly conducted equipment inspections with a maintenance program that includes Reactive and Preventative maintenance. Write testing procedures for evaluation. Write correction plans for shutdowns and turnarounds. Take actions in process for correction or make it stable not worst.
	2. Shortage of Required spare parts.	2. Building an inventory system to set a minimum order for spare parts and HFC has Built an excellent relationships with Egyptian peers to exchange available spare parts between them.
	3. Shortage of imported spare parts because of increasing foreign exchange rates.	3. Relying on local manufacturing within the company's or external workshops as needed.
	4. Leakages	4. Build inspection and maintenance Plans to prevent leakage or decrease and dilute its severity.

Innovative Risk Mitigation

In the Journey of HFC since its commission until now, several innovative solutions to manage risks are worth sharing. These solutions were solely made by our HFC engineers who are currently running our planet.

Demin Unit Improvements

Preventing Formation of the Gelatin Organisms at Demin. Unit to Reduce Pressure Difference (ΔP)

The High ΔP through cation exchangers lead to reducing the production of demineralization water that creates a high operational risk. By checking the inside components of the cation exchangers (nozzles, resin) our engineers found a gelatin organism inside the nozzles' components and sometimes between the resin granules that causes high ΔP. After investigating several solutions from technical and economic viewpoints, an innovative and low cost solution was reached. Changing the temperature before entering cation exchangers was made to change the environment which enables the microorganisms to grow. This simple, yet innovative, solution saved hundreds of thousands of pounds and reduced the high risk of reducing the water flow.

A comparison between the operational parameters before and after applying our innovative solution that illustrate its outstanding result.

The point of mixing raw water with turbine condensate before entering cation exchangers to increase water

The shape of micro- organisms at earlier times of the problem

A comparison between the operational parameters before and after applying our innovative solution that illustrate its outstanding result.

Parameter	Unit	Before	After
˜ P through cation exchanger	bar	1.5 up to 2	0.2 up to 0.4
Q (two train operating only)	m³/hr	° 100	˛ 170
Wasted Demin. Water duo to breakdown and backwash	m³ / breakdown	˛ 1500	° 150
Breakdown time	hr/day	˛ 10	° 4
Broken nozzles Qty./breakdown	No./breakdown	20 up to 30	
Note: This data is shown for one train only			

Pressure of Natural Gas Supply in Ammonia Factory

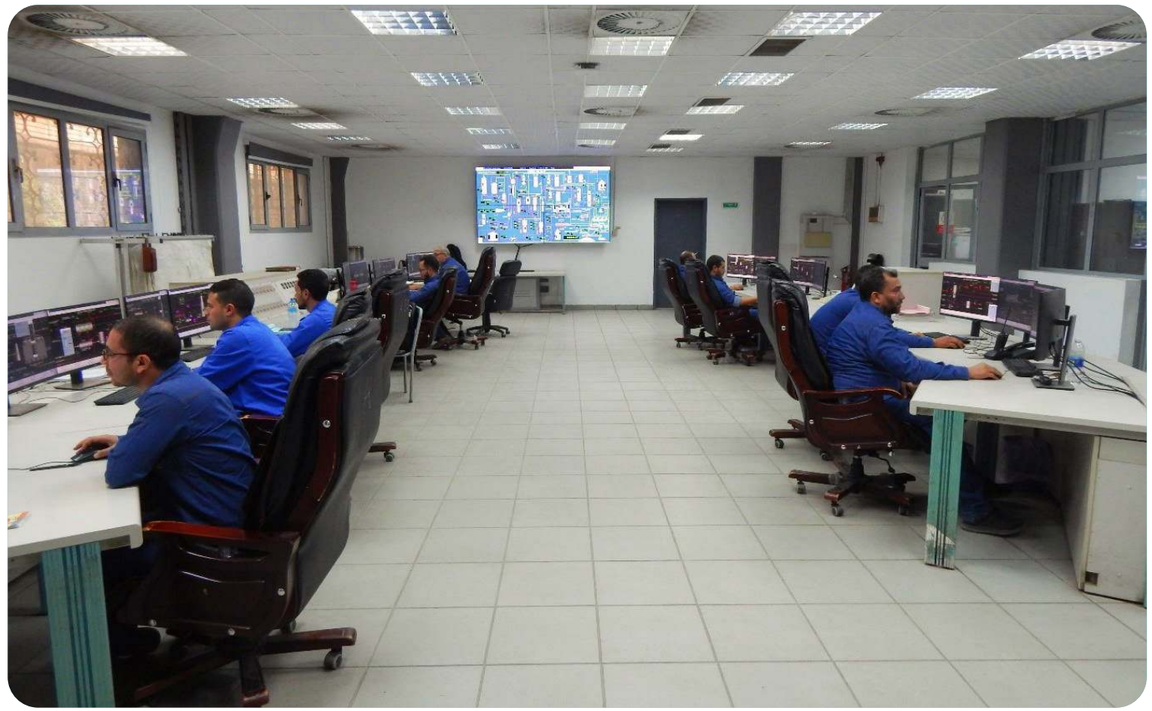
The supply of natural gas to HFC plants is drawn from the national grid. The operating pressure at the battery limit is 26 bars. HFC has let down station to reduce the battery limit pressure to the required operating pressure. The normal differential pressure across the letdown station is 7 bars. Since 2008 HFC faces difficulties as the national grid pressure is coming down less than the 26 bars. The package boiler was tripping on low fuel pressure as the main fuel pressure control valves were not capable of maintaining the fuel header pressure. Moreover, the developed pressure by natural gas compressor was also coming down, reducing plant rate. To overcome this issue, we have upgraded the main fuel control valves and using a bypass BECKER valve at the natural gas let down station. This action reduced the differential pressure from 7 to 3 bars.

Dust and Impurities in N/C Meter Cooler

The molar ratio between NH_3 and CO_2 is one of the process variables in the urea synthesis loop, as NH_3 and CO_2 are converted to Carbamate and finally to urea. Reference is often made to the Nitrogen / Carbon ratio (N/C ratio) instead of the NH_3 / CO_2 ratio. The N/C ratio is constant from the inlet of the HPCC to the outlet of the reactor. The N/C ratio is applied such that the optimum use is made at the occurrence of the top-ridge line. The sample supplied from the rector to the N/C meter is cooled by cooling water. However, dust, sand and many impurities in the air come from other industries in the neighborhood. These impurities are caught by C.W towers and cause an accumulation of mud and dust on the N/C cooler. This precipitation affects the N/C reading and causes corrosion inside the coil of the Carbamate sample. Also, Carbamate escapes to the C.W side of the N/C coil that affects the NH_3 content in the C.W towers. A temporary solution was to clean the N/C Coil. To overcome the risk permanently, HFC engineers suggested installing a new demineralized water line for cooling, replacing the normal cooling water to manage this risk. This process modification was approved by the plant Manufacturer (UHDE).

Moving to Digital Era

Since commission, we have practiced several success stories that can be told, however, we will share the most recent in 2019. HFC has upgraded its Operations Control System that was working since 2007, delivered by ABB company, working under platform Windows Server2003 and Windows XP to the most recent system (800xA Version 6.0.3) working under platform Windows Server 2016 and Windows 10. Also, all obsolete servers and workstations hardware were replaced by new ones. This helps us in keeping pace with the fourth industrial development Revolution (Industry 4.0). Also, the upgraded platform has Smart Client Monitoring System that allows management and engineers to monitor the production process in-line. For efficient operations, HFC employees have received training on how to use the new platform. As one of the automation risks is Cyber Security, HFC reached an agreement with ABB to protect the internal system from outside attacks by setting up different Cyber Security Levels that give other access options and isolate the operating system from the external environment.



Emergency Shutdown (ESD) System

HFC has an Emergency Shutdown (ESD) system that take the plant to a predefined safe state if the basic process control system and/or the process shutdown system fails to gain control of the process. This ESD system is extremely reliable and function on demand and has a TUV certification to SIL2/3 according to the IEC 61508 and IEC 61511 standards. The ESD System is supplied by ABB. HFC has two certified engineers from TÜV Rheinland as functional Safety Engineer, SIS.

Reaching Our Potential Via Training

Certificate

FS Eng (TÜV Rheinland)
Functional Safety Engineer (TÜV Rheinland)

Application Area	**Safety Instrumented Systems**
ID-No.	**# 19620 / 19**
Certificate Owner	**Elsaied Abdou Bially Amer** Egypt
Course Provider	HIMA Paul Hildebrandt GmbH - Germany
Training Contents	Process Safety Risk / Layers of Protection International Safety Standards, Regulations, Enforcement Safety Integrity Level (SIL) Assignment Methodologies Safety Requirement Specifications (SRS) Development Safety Integrity Level (SIL) Verification Methodologies Management of Functional Safety SIS Design and Good Engineering Practices
Issue Date	October 2019
Expiry Date	October 2024
Validity	This certificate is valid for 5 years.

Cologne, November 2019

Dipl.-Ing. Joerg Krämer
Head of TÜV Rheinland Functional Safety Training Program

TÜV Rheinland Industrie Service GmbH
Automation, Functional Safety & Cyber Security
Am Grauen Stein
51105 Cologne - Germany

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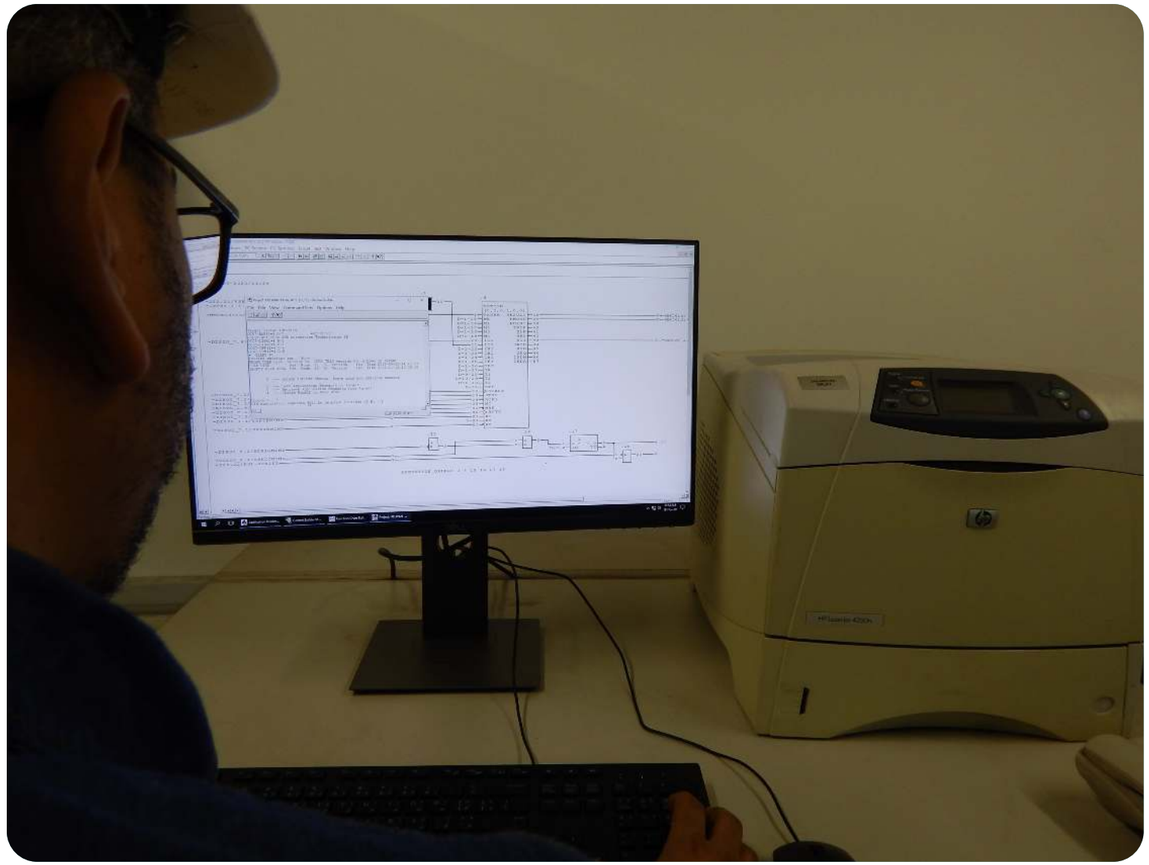

Continuous Perfection

In HFC, we always look at continuous process improvement and apply several modifications to improve our production performance. These process alterations need to be tested, and our engineers need to be trained. Our engineers have designed and implemented three simulation systems for DCS & ESD and Speed Governor Control (WOODWARD 505) to be used in training and testing new modification ideas. Also, HFC moved from Corrective Maintenance to Preventive Maintenance and moving towards proactive maintenance that depends on the failure root cause rather than failure symptoms. The central aim of Proactive Maintenance is to extend the life of machinery as opposed to:

- Making repairs when nothing is wrong.
- Detecting future failure conditions followed by remediation.

Currently, we are preparing a digitization project to integrate between the DCS and ERP Systems.

07

Maintaining our Future

Maintenance for Excellence

HFC is devoted to maintaining efficient and effective functioning in all its production activities and fertilizers delivery through continuous maintenance and improvement. This devotion helps us reach high production quality, customer satisfaction, and improvement of the environment. This would not be achieved without qualifying our staff to deal with the most challenging operational situations. In September 2019, HFC qualified eight engineers from different departments to work as Hazard and Operability (HAZOP) team. The HAZOP methods are used to analyze operations in major companies in advanced countries such as the United States of America and EU members. The aim of forming this team is to keep our asset integrity at its maximum level by HAZOP analysis to prevent plant performance degradation and keep all production outputs like product quality, production rate, and profits at the highest levels.

HAZOP Worksheet

HAZOP Study Worksheet

Study Unit			**RECYCLE COOLER 301E001**			**Sheet No.**	**1 of 1**	
Drawing No.			1	**Rev.**	1	**Document Sequentioal no.**	**S 01 - N 03 - Sh. 001**	
Team Members:			Eng. Amr Abd Elhafeez Eng. Ahmed Abdou, Eng. Ahmed Rifaat Eng. Ahmed Sami, Eng. Mohamed Sabry Eng. Mohamed Saied Eng. Mostafa Ebrahim, Eng. Osama Qura,			**Meeting Date**	**12/11/2019**	
						Study Team Leader	Eng. Saied AlBialy	
						Reported by	Eng. Amr Abdel Hafeez	
Design Intent:			**Material**	Natural Gas with variable composition according to the	**Process/ Activity**	RECYCLE COOLER 301E001 Its purpose is to cool the gas coming out of the compressor in the suction direction		
			Source	BATTERY LIMIT (Gas reducing station) & Cooling Tower	**Destination**	Discharge RECYCLE COOLER 301E001		
Ref. No.	**Property**	**Guideword/ Deviation**	**Possible Cause**	**Possible Consequences**	**Existing Safeguards**	**Comment**	**Recommendation/ Action/ Discussion**	**Action By**
1	Pressure (Cooling Watwr)	More of Pressure	1.1 High pressure from the source	Damage to the cooler 301E001	Safety Valve 30107			
2	Pressure (C.W)	Less of Pressure	2.1 Low Pressure from the source	Disturbance in the compressor & operation	None		2.1 High alarm on suction temperature of 301K001	I & O
3	Flow (C.W)	Less Flow	3.1 Low Pressure from the source	Disturbance in the compressor & operation	None		3.1 High alarm on suction temperature of 301K001	I & O
4	temperature (Process gas)	High temp. outside of theCooler	4.1 Less or no flow (c.w)	Disturbance in operation	TI 301006 &301008		4.1 High alarm on suction temperature of 301K001	I & O
5	Temperature (C.W)	More Temperature	5.1 High temperature from the source	Disturbance in operation	TI 301009 Cooling Watwr Exit		5.1 High alarm on suction temperature of 301K001	I & O

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Date Issued: 11/26/2019

HFC has an extraordinarily strong Engineering Services Department that has several in-house workshops, including Mechanical, Civil Engineering and Structures, that promptly support the maintenance department in fixing operational problems. The workshops are also responsible for producing the necessary Spare Parts that reduce the dependencies on the local and international markets.

Maintenance is our Success Key

Eng. Mohamed Saed the Head of Mechanical Maintenance Department at the FAI Conference on Maintenance Engineering in New Delhi.

Electrical Department Maintenance

Vision

Continuous improvement for maintenance performance.

Mission

Use all our resources to achieve effective equipment performance through the maintenance plan for all plant assets.

Main Strategic Objectives

1. Having a Proactive, Preventive and Corrective Maintenance Strategies.
2. Reorganize team structure to improve work environment.
3. Continuous training to gain professionalism and efficiency of teamwork.
4. Providing spare parts and keeping up to date with new technology.

In HFC, plant-wide maintenance procedures and plans are the keys to keeping its production sustainable. In addition to corrective maintenance orders, HFC Engineers set an annual plan for maintaining their assets. These preventive and predictive maintenance plans contain a description of every maintenance activity to be carried out, in each of the 52 weeks of the year, based on instructions of the manufacturers, operating conditions and must fit the equipment running schedule. The Maintenance Plan consists of:
Maintenance Chart that describes machines that must be maintained per week in the vertical axis and maintenance works for every machine all over the year in the horizontal axis.
Activities List that describes in detail the maintenance works required per week.

These plans are inserted into the Oracle System to automatically assign and issue the maintenance work order for all involved departments. Another Success key is knowing the history of our plant. All our Maintenance Logs are documented and archived since the Commission of HFC Ammonia and Urea Plants in 2006.

HFC HELWAN FERTILIZERS CO. شركة حلوان للأسمدة

Preventive Maintenance Plan

Helwan Fertilizers Co.
Mech Department (utility Section)

QMS-F-751-26A
Page 2/14

Year	2019	Janury				February				March				April				May				June				JulY				August				September				October				November				December			
Description	Ton	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
Package Boiler	383B001										HY																									HY															
Combustion Air Fan	383K001					QY												QY													QY											QY								
Cooling air fan	383K002A			M			M			M			M			M			M			M			M			M			M			M			M			Y			M					
	383K002B			M			M			M			M			M			M			M			M			M			M			M			M			Y			M					
Instrumentation Air Unit	384																							HY																				HY							
Instrument Air comp. *	384K001A	2W		2W		2W	2W		2W		2W		2W		2W		Y		2W		2W		2W		2W		2W		2W		2W		2W		2W		2W		2W		2W		2W		2W		2W		2W	
	384K001B	2W		2W		2W	2W		2W		2W		2W		2W		Y		2W		2W		2W		2W		2W		2W		2W		2W		2W		2W		2W		2W		2W		2W		2W		2W	
Precom. Cooling Tower *	384CT10												HY																										HY												
Nitrogen Gen. Unit	386												HY																										HY												
Nitrogen Gen. Air comp.	386K001A																								QY																								QY		
Nitrogen Gen. Air comp.	386K001B										QY																												QY												
liq. Nitrogen pump	386P001												Y																																						
Cooling water Sys.	388		QY				HY								QY													QY				HY								QY												
Urea cooling tower pump	388P001A																											Y																							
	388P001B																																																	Y
	388P001C	Y																																															
Ammonia cooling tower pump	388P002A																																																Y
	388P002B																											Y																							
	388P002C	Y																																															
Urea C.T. Filtration Pump *	388P003			Y																											HY																			
Ammnia C.T. Filtration Pump *	388P004				Y																										HY																			
Corrosion Inhibitor Dosing Pump *	388P005A						QY												QY												QY											Y							
	388P005B						QY												QY												QY											Y							
Dispersing Agent Dosing Pump *	388P006A						QY												QY												QY											Y							
	388P006B						QY												QY												QY											Y							
Biocide Dosing Pump *	388P007A						QY												QY												QY											Y							
	388P007B						QY												QY												QY											Y							
H2SO4 Dosing Pumps for CTO2 *	388P009A																																			Y													
	388P009B																																			Y													
Chlorination Unit Booster pump *	388P010																																			Y													
	388P011																					Y																											
H2SO4 Dosing Pumps for CTO1 *	388P014A																																			Y													
	388P014B																																			Y													
H2SO4 Unloading Pump	388P015	M				M				M				M				M				M				M				M				M				M				M				Y			

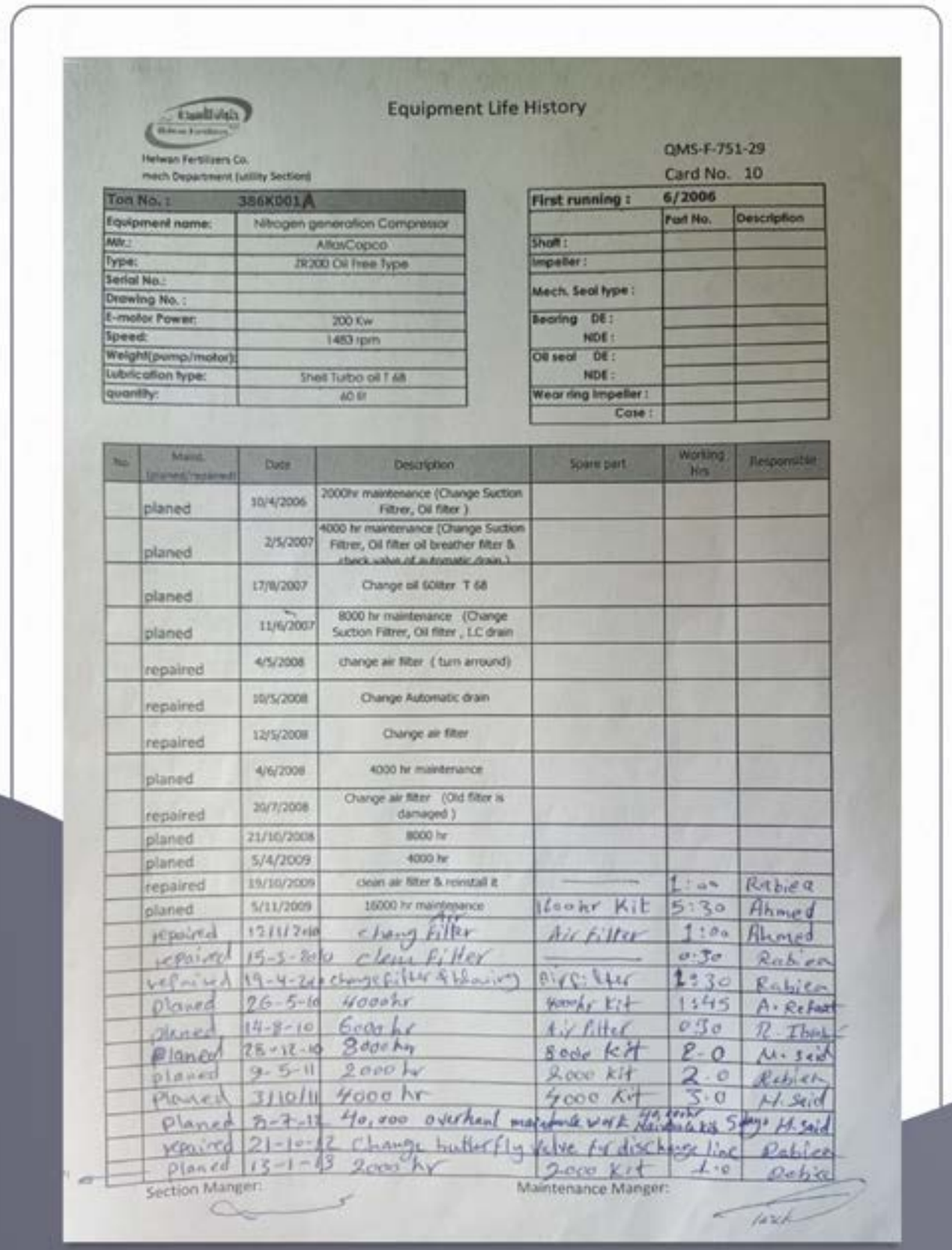
Weekly W | 2Weeks 2W Planed ☐ | Monthly M Applied ☐ | 1/4 Yearly QY | 1/2 Yearly HY | Yearly Y Equipment Running ■ | 2 Years 2Y | Turnaround T Equipment not Running ☐

* Equipment running according to operating condition
**Equipment not running

Prepared by Eng : R.Ibrahem
Eng : Mostafa Abdel moatty

Section Manger: M. Said

Maintenance Manger: omrq



Equipment Life History

Helwan Fertilizers Co.
mech Department (utility Section)

QMS-F-751-29
Card No. 10

Tag No. :	386K001A
Equipment name:	Nitrogen generation Compressor
Mfr.:	AtlasCopco
Type:	ZR200 Oil Free Type
Serial No.:	
Drawing No. :	
E-motor Power:	200 Kw
Speed:	1483 rpm
Weight(pump/motor):	
Lubrication type:	Shell Turbo oil T 68
quantity:	40 lit

First running :	6/2006	
	Part No.	Description
Shaft :		
Impeller :		
Mech. Seal type :		
Bearing DE :		
NDE :		
Oil seal DE :		
NDE :		
Wear ring Impeller :		
Case :		

No.	Maint. (planed/repaired)	Date	Description	Spare part	Working Hrs	Responsible
	planed	10/4/2006	2000hr maintenance (Change Suction Filtrer, Oil filter)			
	planed	2/5/2007	4000 hr maintenance (Change Suction Filtrer, Oil filter oil breather filter & check valve of automatic drain)			
	planed	17/8/2007	Change oil 60liter T 68			
	planed	11/6/2007	8000 hr maintenance (Change Suction Filtrer, Oil filter , LC drain			
	repaired	4/5/2008	change air filter (turn arround)			
	repaired	10/5/2008	Change Automatic drain			
	repaired	12/5/2008	Change air filter			
	planed	4/6/2008	4000 hr maintenance			
	repaired	20/7/2008	Change air filter (Old filter is damaged)			
	planed	21/10/2008	8000 hr			
	planed	5/4/2009	4000 hr			
	repaired	19/10/2009	clean air filter & reinstall it	———	1:00	Rabiea
	planed	5/11/2009	16000 hr maintenance	16000hr Kit	5:30	Ahmed
	repaired	12/11/2010	change Filter	Air Filter	1:00	Ahmed
	repaired	15-3-2010	clean Filter	———	0:30	Rabiea
	repaired	19-4-2010	change filter & bearing	Air filter	1:30	Rabiea
	Planed	26-5-10	4000hr	4000hr Kit	1:45	A. Refaat
	planed	14-8-10	8000 hr	Air filter	0:30	R. Ibrahim
	Planed	28-12-10	8000 hr	8000 Kit	8-0	M. Said
	planed	9-5-11	2000 hr	2000 kit	2-0	Rabiea
	Planed	31/10/11	4000 hr	4000 Kit	5-0	M. Said
	Planed	5-7-12	40,000 overhaul maintenance work			M. Said
	repaired	21-10-12	Change butterfly valve for discharge line			Rabiea
	planed	13-1-13	2000 hr	2000 Kit	1-0	Rabiea

Section Manger:

Maintenance Manger:

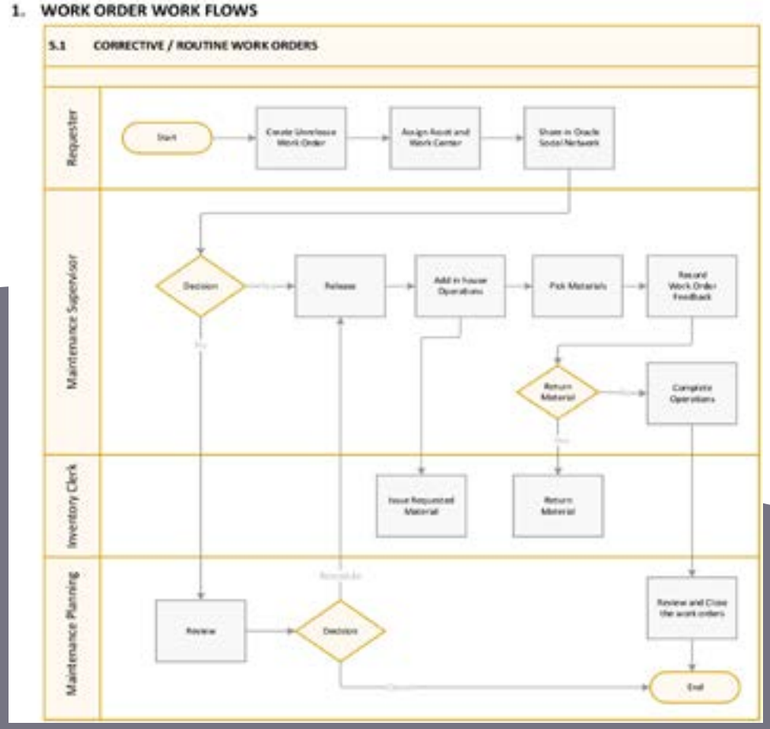
All our Maintenance Logs are documented Since HFC Commission in 2006.
The Photo is for the First Maintenance Log of the Nitrogen Generation Compressor.

Maintenance Planning

> The only route to success is setting a plan, believing in it, and vigorously acting to achieve it. At HFC, we set a sustainable maintenance plan to all our operations no matter how big or small they might be
>
> **- Eng. Mohamed Abd El Monsef**

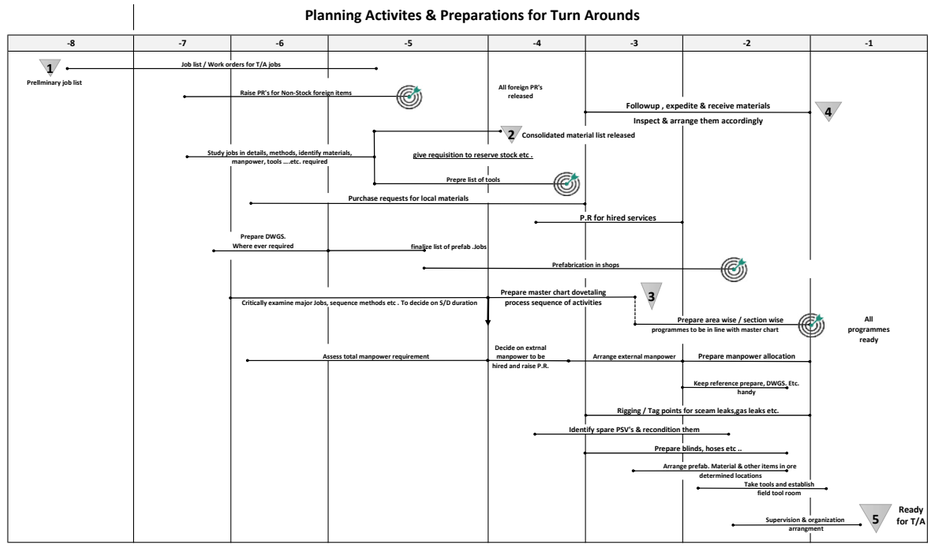
The HFC Maintenance Planning was founded by Eng. Mohamed Abdel Monsef HFC Vice president for factory affairs to carry out the following role:

- Follow up the implementation of CMMS project. The roll of CMMS committee in 2019 was to design maintenance Oracle system structure, work follow, reports and start implementing data collection sheets (Equipment hierarchy, Part list and Inventory items category).



Work order Sample for corrective maintenance as designed by the CMMS committee.

Setting a new strategy for Turn around management preparation and Daily progress follow up that was applied in June 2019 Turn around.



Note : Monthly T/A meeting with works department to review progress and corrective action
Legend : Represents milestones of progress for important preparatory Job

2019 Turn around preparation plan

Maintenance Sector
Mech. Urea - [504]

TURNAROUND 2019
Activities List - All Days
From [18-06-2019] To [02-07-2019]

WBS	% Complete	Unit	Task Name	Remaining Duration	Actual Duration	Start	Finish
413	15%	323	Unit 323 Recirculation	80 hrs	14 hrs	16-06-2019	25-06-2019
413.1	22%	323	323C003 "Rectifing column" & 323E002	63.62 hrs	18.38 hrs	16-06-2019	24-06-2019
413.1	100%	323	1-Remove top cover	0 hrs	2 hrs	16-06-2019	16-06-2019
413.1	100%	323	2-Remove the Manhole N2/N11/N12	0 hrs	4 hrs	16-06-2019	16-06-2019
413.1	70%	323	4-Remove pall Rings / internals	3.6 hrs	8.4 hrs	17-06-2019	18-06-2019
413.1	100%	323	5-Remove bottom cover	0 hrs	6 hrs	18-06-2019	18-06-2019
413.1	0%	323	6- Preliminary Inspection	1 hr	0 hrs	18-06-2019	18-06-2019
413.1	0%	323	7- cleaning	2 hrs	0 hrs	18-06-2019	18-06-2019
413.1	0%	323	8-Thorough Inpection	12 hrs	0 hrs	19-06-2019	20-06-2019
413.1	0%	323	9-Flushing for heater	36 hrs	0 hrs	20-06-2019	23-06-2019
413.1	0%	323	10-Fix back internals	4 hrs	0 hrs	24-06-2019	24-06-2019
413.1	0%	323	11-Fix back pall Rings	4 hrs	0 hrs	24-06-2019	24-06-2019
413.1	0%	323	12-Fix back tray & top cover/N2/N11/N12	4 hrs	0 hrs	24-06-2019	24-06-2019
413.1	0%	323	13-Fix back bottom cover	4 hrs	0 hrs	24-06-2019	24-06-2019
413.2	19%	323	323C005 "Atmospheric Absorber"	27.42 hrs	6.58 hrs	16-06-2019	19-06-2019
413.2	100%	323	1-Remove top cover	0 hrs	2 hrs	16-06-2019	16-06-2019
413.2	100%	323	2-Remove inside manhole N7.	0 hrs	4 hrs	16-06-2019	16-06-2019
413.2	0%	323	4-Remove pall Rings	4 hrs	0 hrs	17-06-2019	17-06-2019
413.2	0%	323	5-Preliminary Inspection	1 hr	0 hrs	17-06-2019	17-06-2019
413.2	0%	323	6- cleaning	4 hrs	0 hrs	17-06-2019	17-06-2019
413.2	0%	323	7-Thorough Inpection	4 hrs	0 hrs	18-06-2019	18-06-2019
413.2	0%	323	8-Fix back pall Rings	4 hrs	0 hrs	19-06-2019	19-06-2019
413.2	0%	323	9-Fix back Manhole	4 hrs	0 hrs	19-06-2019	19-06-2019
413.2	0%	323	10-Fix back The top cover	4 hrs	0 hrs	19-06-2019	19-06-2019
413.3	8%	323	323F010 Pre evaporator & heater	40.41 hrs	3.59 hrs	16-06-2019	20-06-2019
413.3	100%	323	1-Open the manhole	0 hrs	4 hrs	16-06-2019	16-06-2019
413.3	0%	323	2-Preliminary Inspection	1 hr	0 hrs	16-06-2019	16-06-2019
413.3	0%	323	3- cleaning	12 hrs	0 hrs	17-06-2019	18-06-2019
413.3	0%	323	4-Thorough Inpection , Repair as per I/R	4 hrs	0 hrs	18-06-2019	18-06-2019
413.3	0%	323	5-Open drain flange of Flush out heater 323E010	24 hrs	0 hrs	18-06-2019	20-06-2019

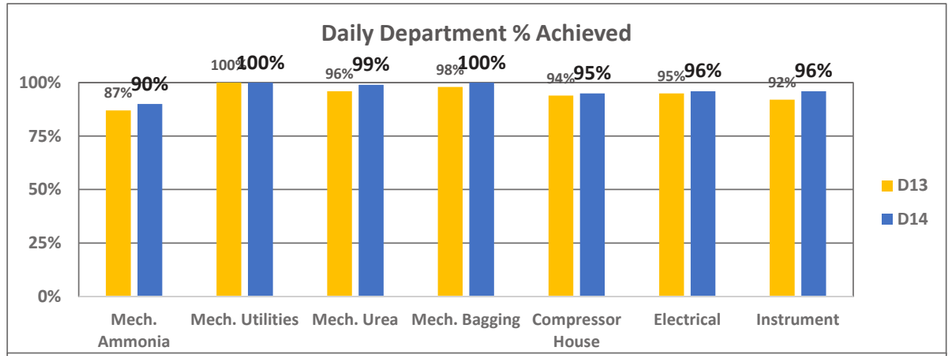
Version 5.6 Page 4/17 **Mech Urea**

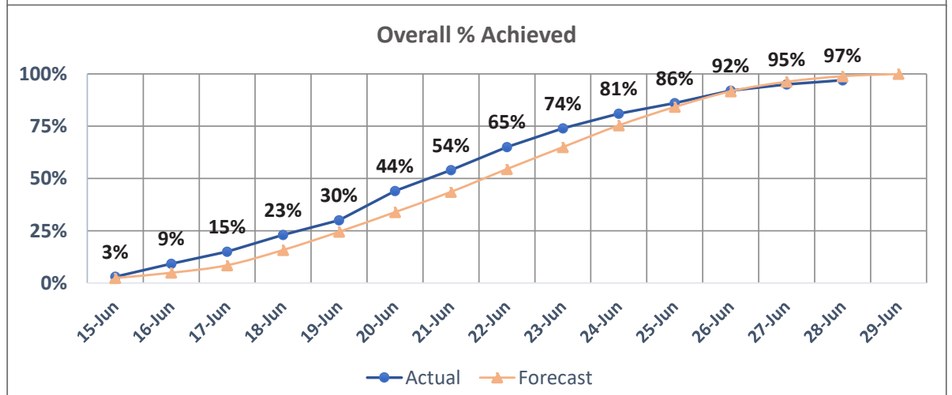
Turnaround Scheduling Tables

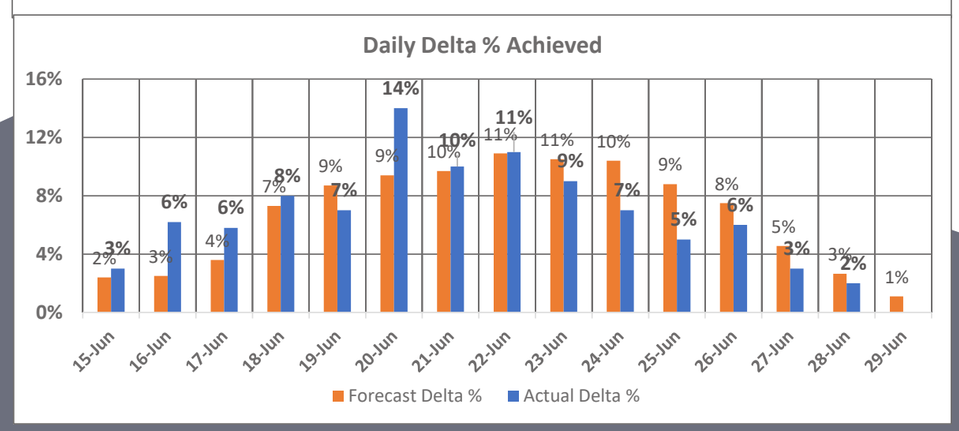
Maintenance Sector تخطيط الصيانة	**Turnaround 2019 Daily Report**	
Date: Thu 28-06-2019	**Day No.: 14**	**Overall: 97 %**

Helwan Fertilizers S.A.E

1- Turnaround Progress







Prepared by: Maintenance Planning	Page **1** of **3**	Printed on: 29 June 2019

Daily progress Sheet for 2019 Turnaround

The 2019 Turnaround

During the preparation of the factory turnaround in June 2019, HFC Production Engineers focused on improving both energy consumption and production equipment efficiency. Accordingly, the bottlenecks limiting the plant productivity and the reasons for increased energy consumption rates per ton were identified and managed. A comparison was made between the production and the natural gas consumption rate before and after the Turnaround.

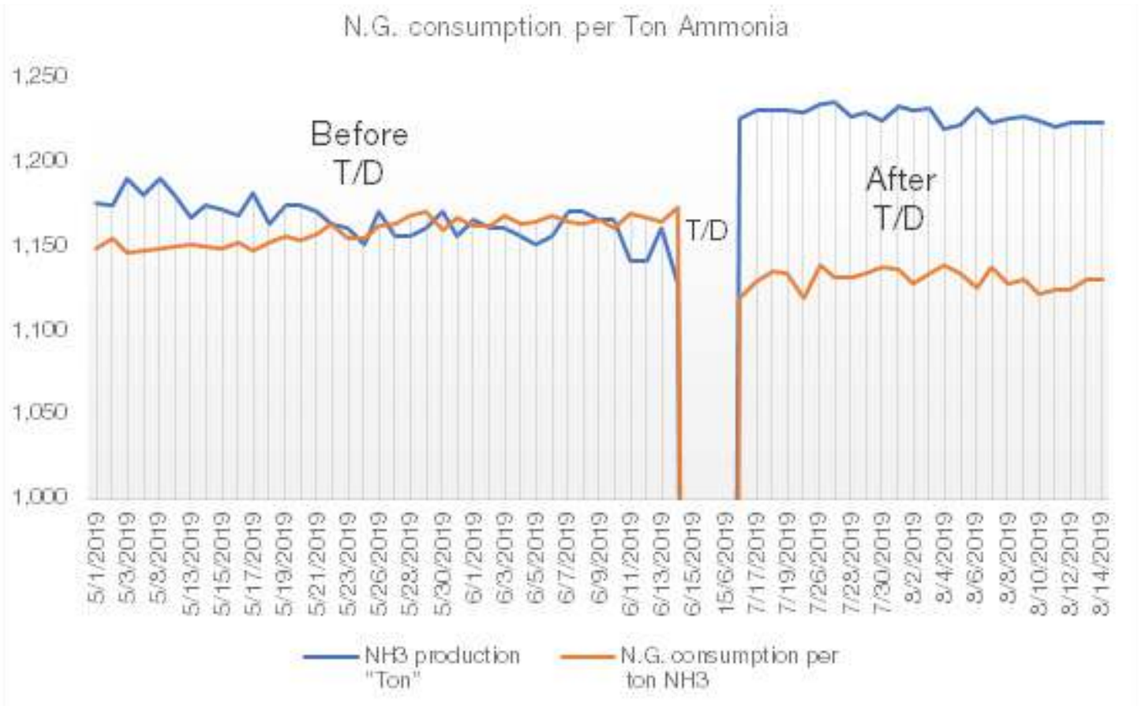
After Turnaround in 2019:

The average daily production of Ammonia increased from 1156 tons/ day to 1223 tons/day.

The average daily NG consumption reduced from 1156 tons/ day to 1223 tons/day.

The average daily production of Urea was increased from 1,866 tons/ day to 1935 tons/day.

The process of cleaning the heat exchanger tubes of the lost energy boiler during Turnaround



Beyond Expectations: Inspection and Condition Monitoring

In addition to its excellent operational and maintenance performance, HFC relies on inspection to keep eye on the condition and safety of every element in its plants through inspection and condition monitoring and use them in building its maintenance plans. The inspection personnel is responsible for supervising all equipment inspections such as pressure vessels, heat exchangers, tanks, pipes. It is also responsible for:

- Pre- and Post-inspection of welding materials and welding through nondestructive tests.
- Checking welding thickness through a well-defined process flow.
- Welding is carried out for Fabrication or Repair.
- Check the welding materials quality using alloy analyzer.
- High-Quality Coating only.
- Valves inspection.
- Parts inspection.
- Perform welding nondestructive tests.
- Measure and evaluate wall thickness for pipes, pressure vessels, tanks elbows and all other fittings.

The Aims of Condition Monitoring in HFC

The aim of this section is:

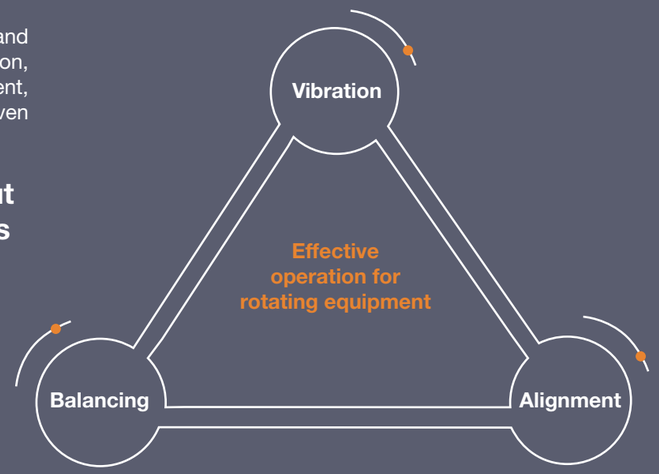
- Vibration Control
- Minimize Equipment Failure
- Vibration Analysis
- Calibration Entity
- Internal Equipment Calibration
- Increase Equipment Lifetime
- Increase Equipment Reliability

Adjusting Process

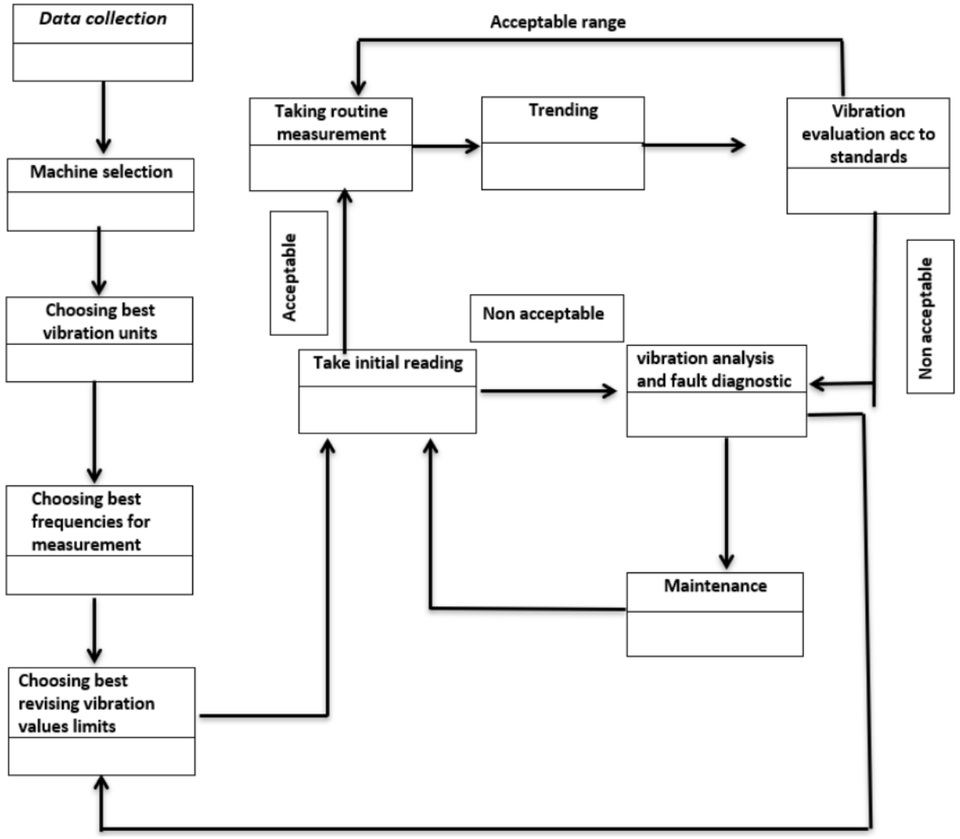
The condition monitoring role is to measure and analyze vibration, perform ultrasound inspection, site balancing for rotating equipment, adjusting alignment between driver, and driven rotating machines and measuring liquid flow.

14 years of Operations without Sudden Failure of Rotating Parts

60% -65% of failures of rotary equipment occur due to Alignment and Balancing issues



Maintenance plan based on vibration analysis



From Preventive to Predictive Maintenance

At HFC, we are pushing our performance limit through predictive maintenance. For example, Ultrasonic Leak Surveying (ULS) Technology is used to locate leaks, detect electrical emissions, and inspect mechanical conditions in operating equipment. They receive high-frequency sounds and electronically translate these signals down into the audible range where they can be heard through headphones and seen as intensity increments on a meter or display panel.

Just because you cannot hear a leak does not mean they do not exist.

ULS typically save on average

$5,000-$100,000

/year in reduced runtime, maintenance costs and energy consumption.

Leaks and failure of valves or steam traps can be extremely costly in terms of product quality, safety, and energy loss. Hence, in HFC, we use Valve Ultrasonic Inspection to detect them. One of the advantages of Ultrasonic testing is that it is easy to adjust for the differences in the operation between valves and steam traps and readily determines operating conditions while valves and traps are on-line.

Flowmeter Ultrasonic Inspection for Pump Performance

Although pressure is one of the most measured process variables and most plants have hundreds of pressure gauges, they often do not accurately represent system pressure. This may cause serious problems in operation that make production facilities select other variables to measure. The Flow measurement is one of the most difficult variables to be done due to its high cost. In HFC, we believe that investing in keeping our operations running is never high. Hence, in addition to pressure measurement, we selected to invest in measuring the flow via **Portable Ultrasonic Flow-meters.**

Mina Shenouda

Head of CM and Category IV Vibration Analyst

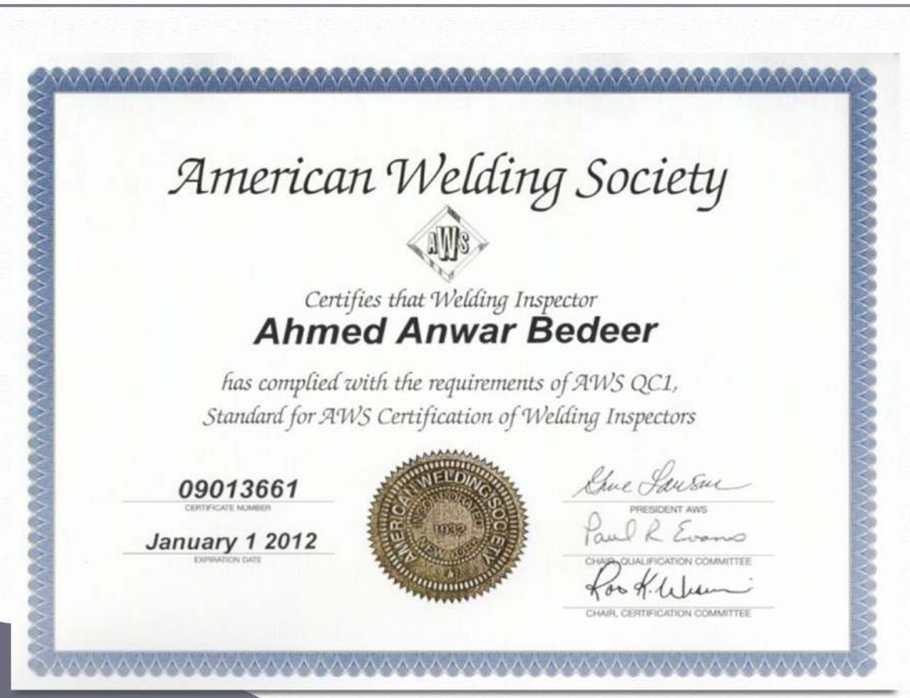
Words of the CM and Inspection Heads

We are working in Helwan Fertilizers Company since 2006; from that timing, we are trying to sustain all rotating and static equipment of nondestructive & condition monitoring technologies. We always use calibrated devices and Reference standards like ISO and API for the equipment assessment if no standards are available, and we always use equipment measurement trending.

During our job at HFC, we are always trying to apply Proactive Maintenance that is accomplished by Root Cause Analysis (RCA) for any failure to avoid it in the future. Reading Original equipment manufacturer (OEM) manual is essential in our role in HFC. Manuals always include equipment drawing, maintenance instructions, welding procedures, malfunction table, equipment suitable process parameters (pressure, flow, temperature, vibration, etc.).

As most of our jobs depend on accurate measurements, we are always careful to calibrate our equipment in the manufacturing facility or at National Calibration Institute. All of the engineers in our department are careful to be certified by an international certification organization.

HFC Certified Inspection Professionals



American Welding Society

Certifies that Welding Inspector

Ahmed Anwar Bedeer

has complied with the requirements of AWS QC1,
Standard for AWS Certification of Welding Inspectors

09013661
CERTIFICATE NUMBER

January 1 2012
EXPIRATION DATE

PRESIDENT AWS

CHAIR, QUALIFICATION COMMITTEE

CHAIR, CERTIFICATION COMMITTEE

Vibration Institute

Certifies that

ABDELRAHMAN NAGAH AHMED BALEGH

has successfully completed the requirements for

VIBRATION ANALYST: CATEGORY III

In accordance with
the requirements stated in ISO 18436-2 Vibration Condition Monitoring and Diagnostics

The Vibration Institute was established in 1972 for the dissemination
of practical information on evaluating machinery behavior and condition.

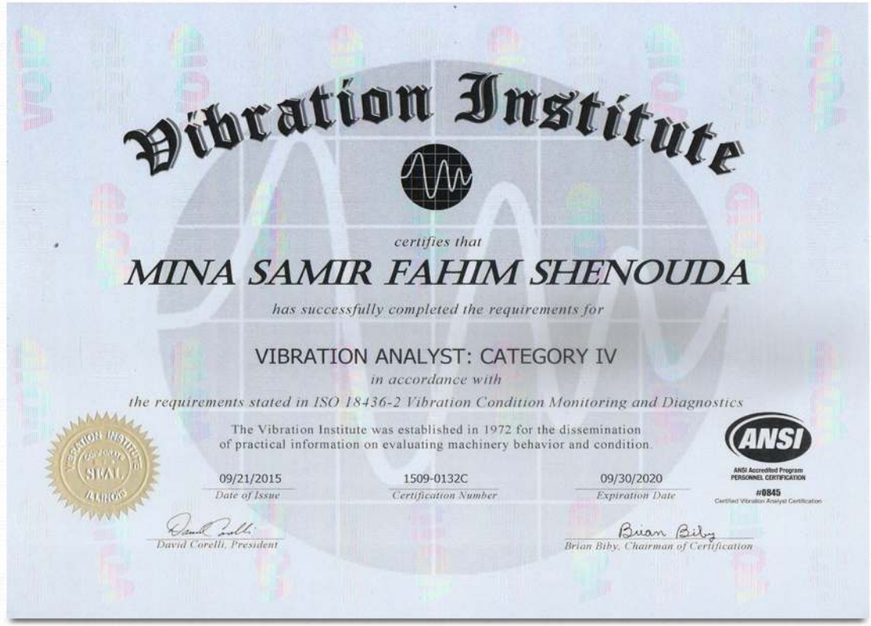
07/20/2020 — Date of Issue

2007-1842B — Certification Number

07/20/2025 — Expiration Date

Robert Sayer, President

Gyorgy Staszi, Chairman of Certification



Vibration Institute

certifies that

MINA SAMIR FAHIM SHENOUDA

has successfully completed the requirements for

VIBRATION ANALYST: CATEGORY IV

in accordance with

the requirements stated in ISO 18436-2 Vibration Condition Monitoring and Diagnostics

The Vibration Institute was established in 1972 for the dissemination
of practical information on evaluating machinery behavior and condition.

09/21/2015 — Date of Issue

1509-0132C — Certification Number

09/30/2020 — Expiration Date

ANSI — ANSI Accredited Program PERSONNEL CERTIFICATION #8845 Certified Vibration Analyst Certification

David Corelli, President

Brian Biby, Chairman of Certification

API INDIVIDUAL CERTIFICATION PROGRAMS

verifies that

Ahmed Anwar El Agamy

HAS MET THE ESTABLISHED AND PUBLISHED REQUIREMENTS FOR API CERTIFICATION AS AN

API 510 PRESSURE VESSEL INSPECTOR

IN ACCORDANCE WITH THE KNOWLEDGE DEFINED IN THE API Standard 510

CERTIFICATION NUMBER 39333

ORIGINAL CERTIFICATION DATE	November 30, 2010
CURRENT CERTIFICATION DATE	November 30, 2019
EXPIRATION DATE	November 30, 2022

Manager, Individual Certification Programs

API | ICP

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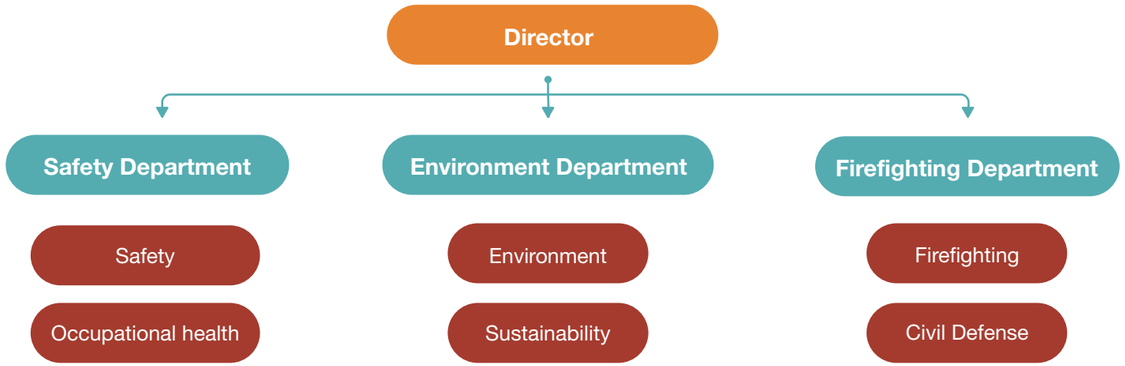
08

Health and Safety

Protecting our People and the Environment

The organizational structure of the department



Safety in Maintenance Policy in HFC

Safety in Maintenance is being practiced as a general policy of the company. It is the duty and personal responsibility of every employee to take reasonable care for the safety and health of himself and other persons who may be affected by his actions at work as well as for the safety of the company's properties. Maintenance Manager through the Superintendents and their Engineers are responsible for ensuring that plants and equipment are maintained in safe, operable conditions and that every accident or incident is reported immediately to the Industrial Security and Environment Department. Superintendents are aware of the company's safety regulations to ensure that Contractors working in their areas. Maintenance

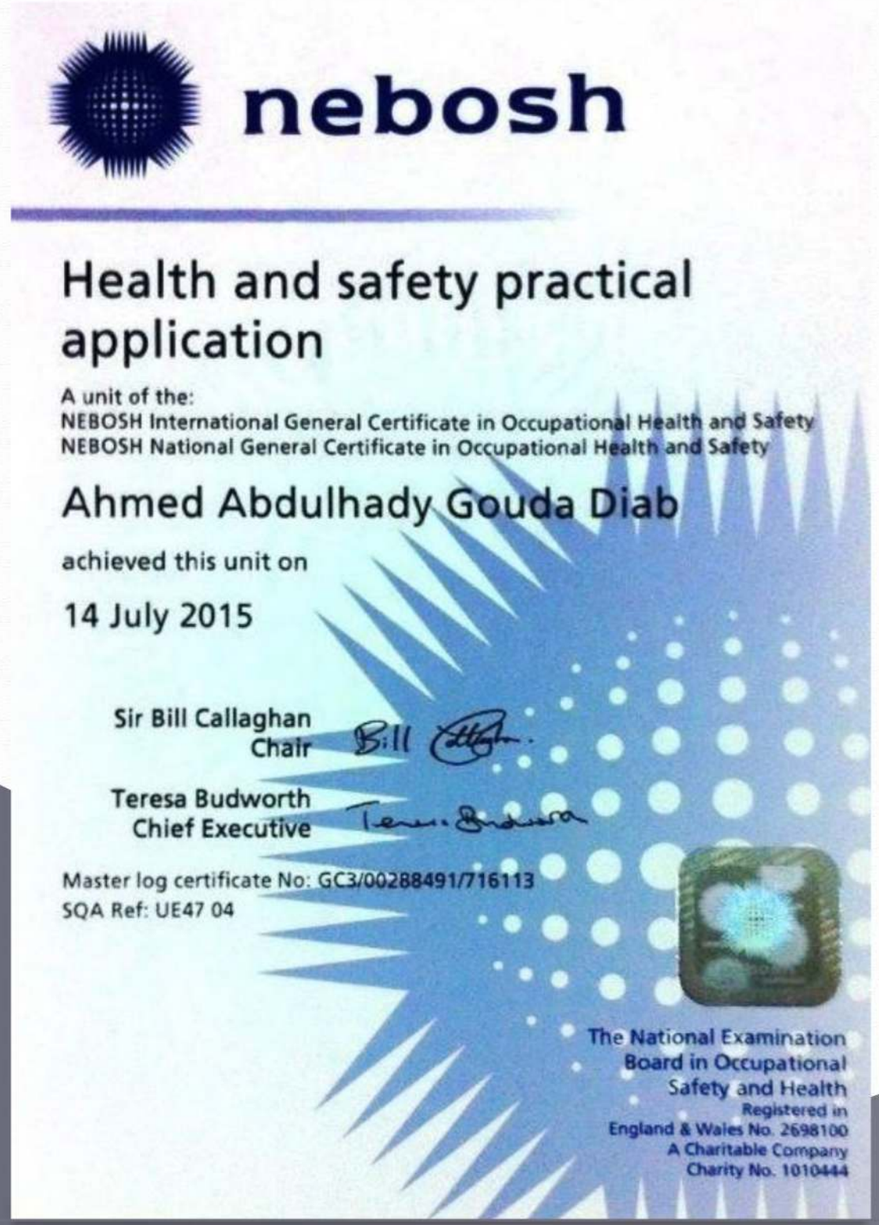
Supervisors are responsible for obtaining a Work Permit from authorized area authority and hand it over to their crewmen. Routine jobs generally require a Cold or Hot Work Permit. While performing various maintenance activities such as electric arc welding, gas cutting, electrical work, making scaffolding, excavation, vessel entry, etc., general safety guidelines should be followed as mentioned in the Safety Manual. Contractor safe working procedure for contract control is followed as per the Process Safety Management Manual.

Planning our Safety and Productivity

At HFC, we believe that planned maintenance is more cost-effective, safe, and of better quality. Therefore, Planning Section ensures that the job is already planned before scheduling so that scheduled jobs will have all resources needed for completion of the job in time. Planning section plans and organizes routine jobs on a daily basis depending upon plant requirements. Also, Turnaround and major shutdown jobs are planned and scheduled to ensure minimum downtime with optimum resource usage.

Adjusting the discharge pressure of high-pressure Ammonia Pump - Urea Plant

HFC Certified Safety Professional



nebosh

Health and safety practical application

A unit of the:
NEBOSH International General Certificate in Occupational Health and Safety
NEBOSH National General Certificate in Occupational Health and Safety

Ahmed Abdulhady Gouda Diab

achieved this unit on

14 July 2015

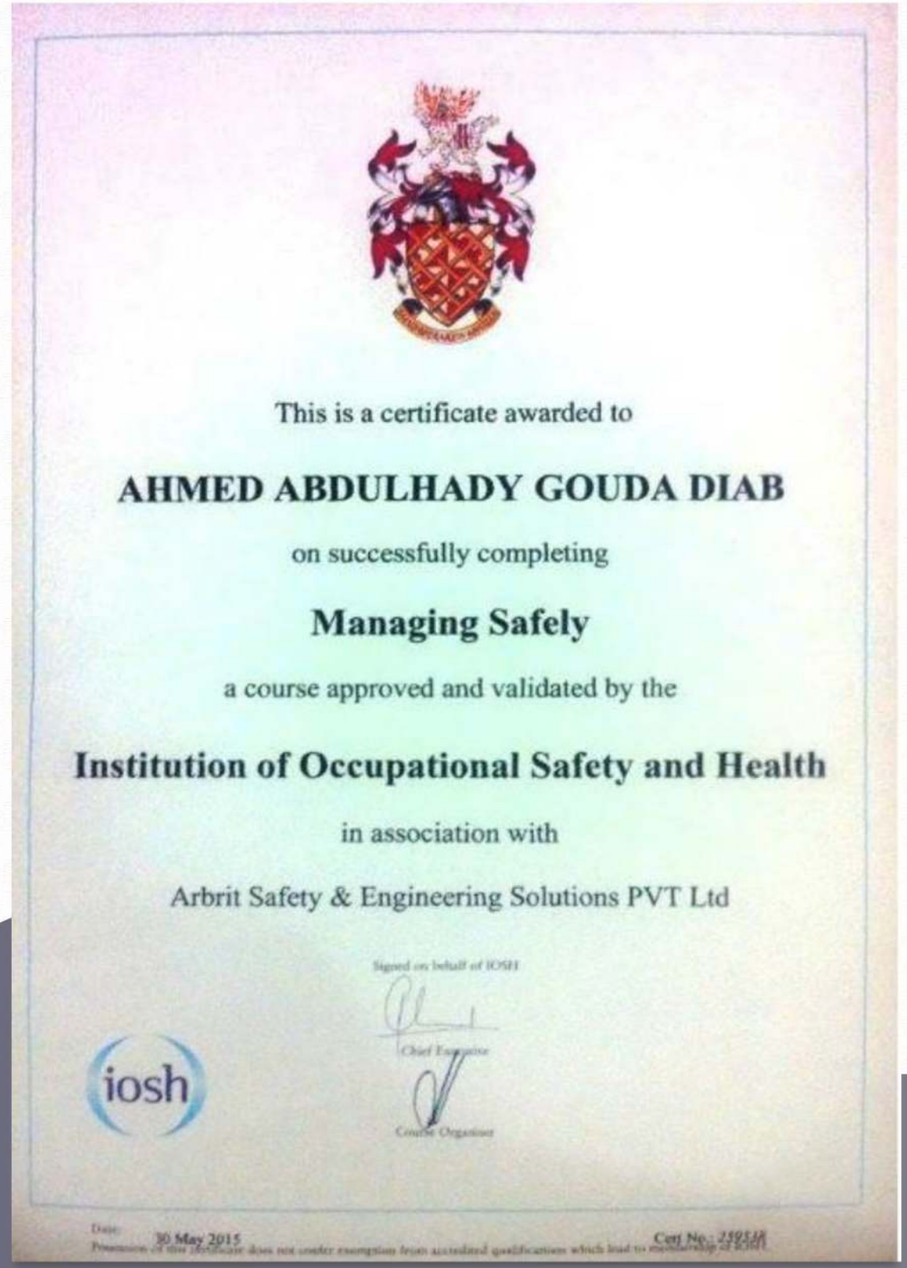
Sir Bill Callaghan
Chair

Teresa Budworth
Chief Executive

Master log certificate No: GC3/00288491/716113
SQA Ref: UE47 04

The National Examination Board in Occupational Safety and Health
Registered in England & Wales No. 2698100
A Charitable Company
Charity No. 1010444

HFC Certified Safety Professional



This is a certificate awarded to

AHMED ABDULHADY GOUDA DIAB

on successfully completing

Managing Safely

a course approved and validated by the

Institution of Occupational Safety and Health

in association with

Arbrit Safety & Engineering Solutions PVT Ltd

Signed on behalf of IOSH

Chief Executive

Course Organiser

iosh

Date: 30 May 2015

Cert No.: 25954

Possession of this certificate does not confer exemption from accredited qualifications which lead to membership of IOSH

More Safety Less Incidents

During the reporting period, no physical accidents occurred inside the company due to the application of precautionary measures and safety instructions communicated to our employees through a network of digital screens spread around our plant.

We encountered two Imbalance incidents in 2018 and 2019. We sent the wounded to the company's clinic to carry out the necessary first aid procedures, and then they were transferred to the hospital for additional medical treatment. Afterward, our occupational health &Safety department issued a report for the accident, and the injured employees received sick leave until they became well and returned to work.

HSE Challenges

HFC deals with a lot of hazardous materials, so the Occupational Safety and Health Administration is considered one of the most important departments that deal with risks in the workplace, and therefore there are some difficulties that may affect fully accomplishing the required work.

Changing the Safety Culture.

We can overcome these obstacles by Nurturing a safety culture. In this regard, the administration's objective is to raise awareness of safety management through a set of training programs for our employees and procedures to develop emergency plans and safety and fire devices. Environmental sustainability is one of HFC's focuses. We always strive for environmental compatibility through a dynamic network of stakeholders, including our partners.

HFC's production departments have a key role for the environmental impact of the company. To ensure compliance with our production and occupational health and safety standards, we ask for their inputs on a daily basis. To manage other environmental risks, such as chemical hazards, the General Administration of Occupational Safety and Health visits our stores regularly to monitor the safe storage, delivery and receipt of chemicals, lubricating oils, and other materials according to our safety and occupational health instructions.

To ensure zero harmful impacts on the nearby communities, we are fully connected with the Egyptian Environmental Affairs Agency data network, and in this way, we can monitor our gases limits emitted in the area.

Our instruments (Radiation Measuring Devices) are always calibrated according to the national and international standards of well-recognized organizations. For example, the Electronic Personal Dosimeter and Survey Meters used for measuring the radiation level in the Urea Plant Reactor are calibrated in the laboratories of the Nuclear Research Center of the Atomic Energy Authority of Egypt.

Firefighting and Civil Defense

The HFC's Firefighting and Civil Defense department has a separate building within the HFC premises which shows our commitment level to our operations safety and security. In addition to a fire truck with a six cubic meter water tank and a 600-liter foam tank, the firefighting team in HFC is prepared with state-of-the-art firefighting technologies and equipment, such as fire extinguishing devices, automatic firefighting systems, emergency and chemical spill control devices.

HFC Fire Fighting Building

HFC Fire Fighting Team

09

Safeguarding the Environment

Safeguarding the Environment

Our main objective is to safeguard the surrounding environment and prevent contamination risks. For this purpose, samples are analyzed regularly to ensure that there are no additional emissions from the factory than the directions of the Egyptian Environment Affairs Agency. The analysis showed that the emissions were lower than the permitted limits according to environment low No.1994/4 and 9/2009.

HFC has a third-party assurance for compliance with environmental laws.

HFC is the first fertilizers company to connect with EEAA.

HFC has a waste management system where hazard waste is temporarily buried in a land owned by the factory, until it is later collected and transferred to a waste burial fill.

In November 2016, Helwan Fertilizers Company completed the process of direct linking its ammonia gas monitoring unit from the stack of the Urea Production Unit to the National Industrial Emission Monitoring Network to comply with the obligations of the Egyptian Ministry of Environment and at the same time perform continuous industrial emissions and solid particles monitoring of major industrial entities. HFC is one of the 46 companies monitored electronically through the Environmental Affairs Agency around the clock. HFC gets by Also, the Ministry of Environment conducts unannounced inspection visits to ensure full compliance with the related laws and regulations. Recently, the inspection visits have increased, especially during the black-cloud months. In all these inspections, HFC was compliant with all environmental regulations.

External Compliance Monitoring

In October 2019, in coordination with the Tebin Institute for Metallurgical Studies we prepared an environmental compliance study for the company. The institute measured the following: the level of light intensity, the thermal stress, the concentrations of ammonia gas emissions in the vicinity of the working environment, the concentrations of solid particles in addition to nitrogen oxides. The study results showed that all measurements are at an acceptable level and in compliance with environmental laws.

Protect and Sustain

The Protect and Sustain Certificate is a credential that is granted for fertilizer companies only. Only 40 companies worldwide have been granted this certificate. HFC is one of three companies that was awarded the Protection and Sustainability Certificate. To be eligible for the certificate, HFC implemented five ISO specifications related to Quality, environment, occupational safety and health, social responsibility, security. Helwan Fertilizers obtained this certificate due to the company's commitment to producing high quality products that are accepted worldwide while preserving the environment and complying to all environmental laws. In addition to the application of the occupational safety and health system with the utmost professionalism. Moreover, this certificate was granted to Helwan fertilizers due to their efforts towards the surrounding community and the company’s eagerness to perform their duties towards the local communities.

HFC’s CEO& Managing Director, Receiving the IFA Protect & Sustain Product Stewardship Excellence Certificate in 2019

Managing Our Environmental Performance

The Company is keen to comply with the emission and drainage limits set by environmental laws and regulations for continuous monitoring under the Law 4 of 1994 and amended by Law No. 9 of 2009. All licenses and certifications are renewed on time. Our focus on our positive environmental impact represents an important pillar in our company's policy. To this end, there was a need to develop institutional relations with all stakeholders, including our partners.. We have a strong environmental profile and regular coordination with the Egyptian Environmental Affairs Agency (EEAA) to prevent environmental risks. Our company's commitment to all occupational safety standards, helped us to obtain several certifications, such as the ISO 14001/2015, ISO 45001/2018, ISO 18001-2007, and the Protect & Sustain Certification. Also, HFC has practiced two shutdowns in 2017 and 2019 with no injuries.

Waste Management

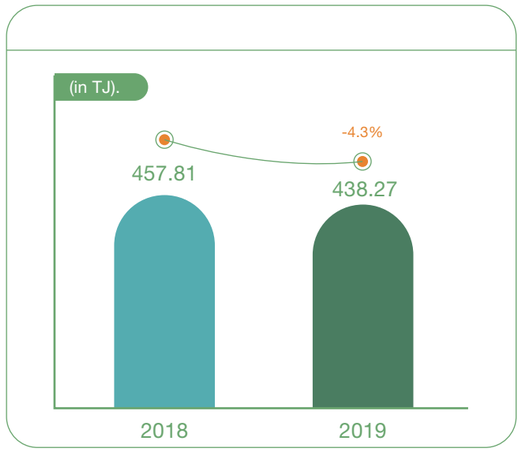
HFC generates different types of Hazardous and Non-Hazardous waste materials from its operations. The HFC storage facilities first collect all hazards generated before their disposal according to the environmental protection law of Egypt and the rules of the Ministry of Environment. The recycled non-hazard waste materials such as damaged bearings, transformer oil, and motor winding wires are sold to recycling companies. The hazardous materials are stored in our hazardous waste store and transferred to authorized sanitary landfills for safe waste disposal through a contracted environmental service company, which is licensed by the Ministry of Environment and the Egyptian Environmental Affairs Agency.

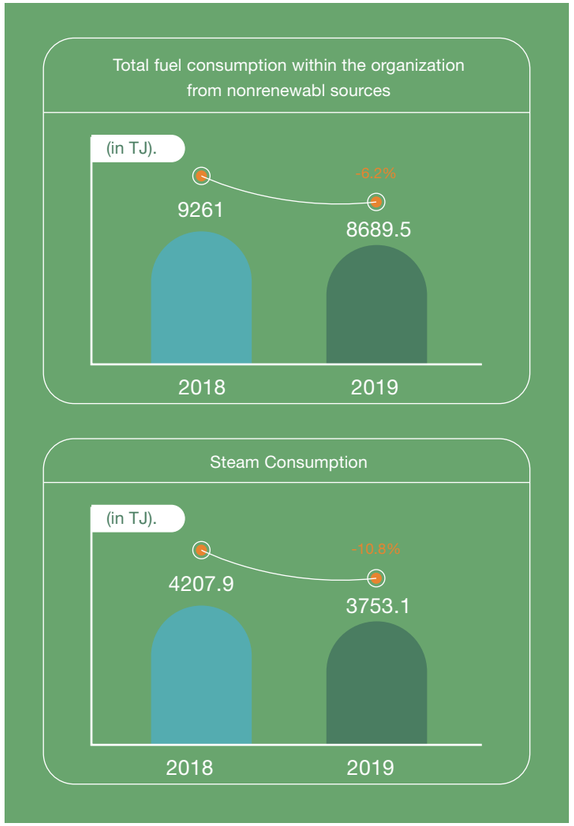
Description	2018	2019
Materials used by weight or volume (NG)	484,768,999 NM3	466,368,220 NM3
Materials used by weight or volume (Water)		2,926,182 M3
Materials used by weight or volume (Bags)		1,170,000 PP/PE Bags for Export (50 Kg and 1 ton) 4,268,640 Bags for Local Market (50 Kg)
Energy intensity	Ammoina: 37237.6 MJ /Ton Urea: 25104 MJ /Ton	
Reduction of fuel consumption		571.5 TJ
Reduction of energy consumption (Elect.)		5426 MWh
Water withdrawal by source	Feed water withdrawn from State company	
Consumption	3.874 MM3	2.926 MM3
Direct (Scope 1) GHG emissions	1046000 Kg CO2eq	932500 Kg CO2eq
Reduction of GHG emissions		113500
Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	Our emissions are much below the permitted national and international limits.	NOx from Package Boiler Vent Stack: 158 mg/m3 SO2 emissions from Diesel fuel: 46 mg/m3
Water discharge by quality and destination	24000 m3	24000 m3
Waste by type and disposal method	Waste by type and disposal method: Quantities as per attached excel sheet divided as follows: 1. Water discharge delivered to El-cock company treatment unit. 2. Wastewater blockage material delivered to sewage network company. 3. Oil waste delivered to external company as disposal. 4. Urea powders reused 5. Spent catalyst sold to be recycled 6. Fe spent catalyst delivered to external company as disposal 7. Plastic bags sold 8. Urea sold 9. Mechanical Scrap sold to be recycled. Management approach: • Decreasing oil wastes corrective action in SOP. • Decrease wastes by control process malfunction.	
Non-compliance with environmental laws and regulations	HFC Complies with all Environmental requirements.	

Energy Management

HFC covers 93.3% of power consumption using an internal steam power generator with 14 MWH Capacity with NG as the main source. Only one MWh of electricity needs are bought from the government. This near self-reliance of power supply makes it possible for HFC to manage its production with no or less power supply risks. HFC has an emergency generator and UPS System for critical units' operations to ensure running the essential equipment during the inevitable power cutoffs.

Total Energy Consumption

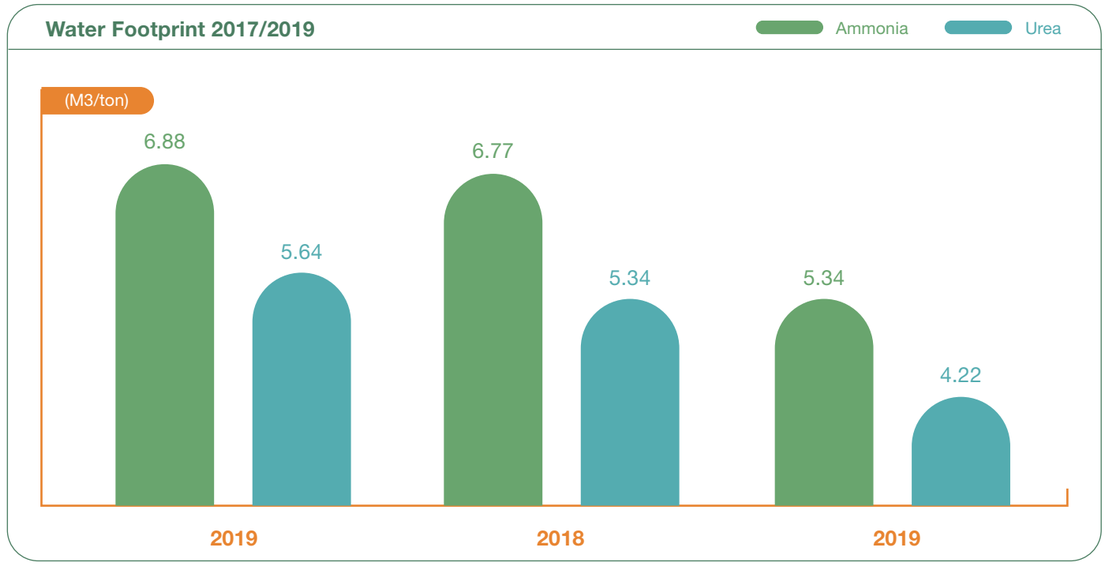




Water Footprint

Operating in a Water-stress country, HFC is committed to continuously monitor its water usage.
Our fresh water used in the year 2019 shows reduction of about 26% compared to 2018.

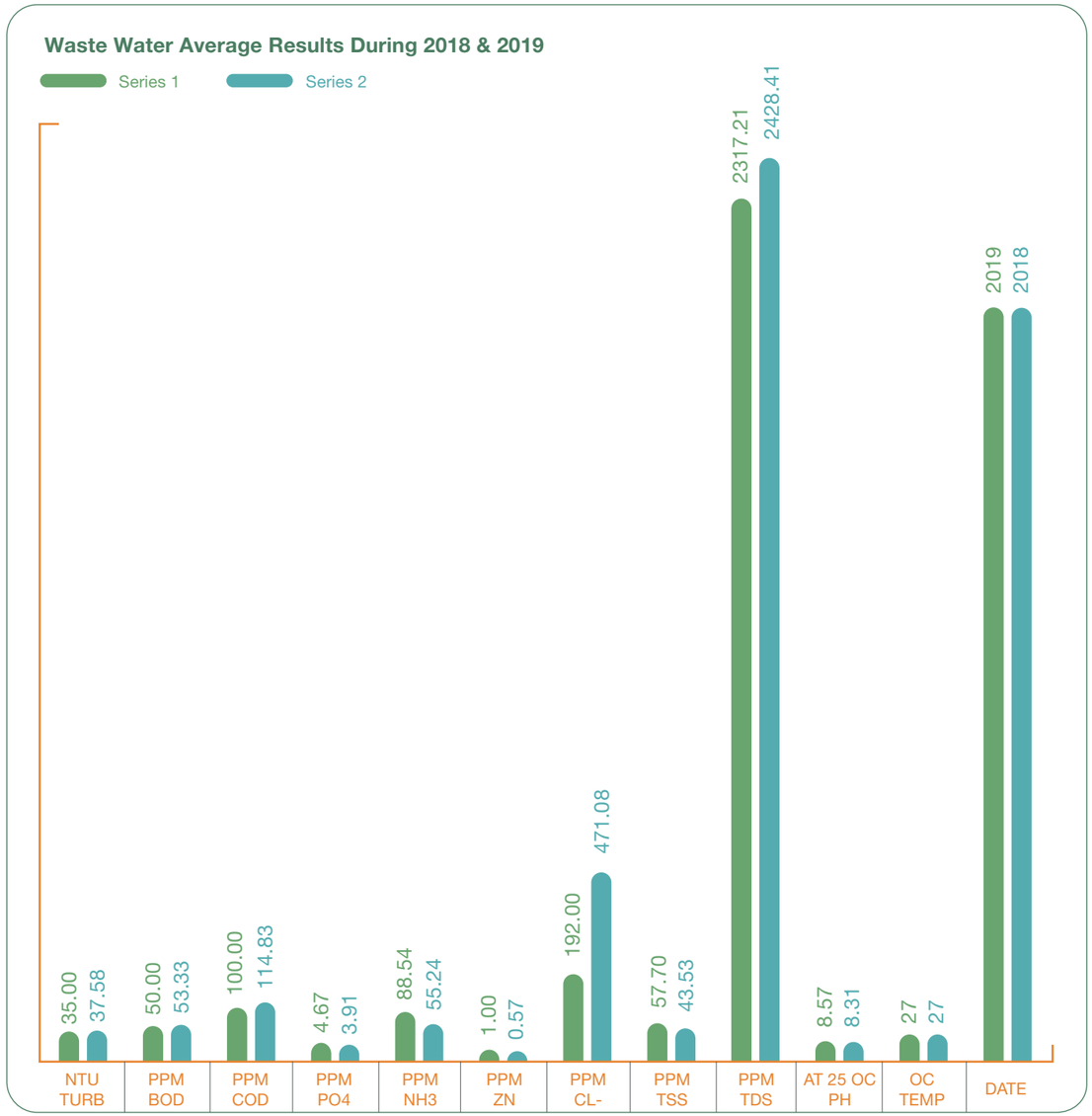
	Water Consumption in Production			Water Footprint	
Year	Total M^3	Ammonia M^3	Urea M^3	Ammonia M^3/ton	Urea M^3/ton
Design	4147200	3085516	1061683	7.71	6.91
2017	3935971	2928362	1007608	6.88	5.64
2018	3874070	2882308	991761	6.77	5.34
2019	2926182	2177079	749102	5.34	4.22



Our Success Stories

Among our success stories, the most important one is the absence of serious accidents during the production process or other activities. This is a result of our continuous and dedicated application of our occupational safety and health standards. It is also important to mention that the occupational safety and health Staff participated in the development of the production process, which detected a decrease in energy and water consumption during the reporting period.

Also, no environmental violations were inflicted by the Environmental Affairs Agency during , periodic, undeclared visits the previous period by the Environmental Affairs Agency's specialized inspection bodies. The most important practical success story was the water waste rates reduction.



Due to HFC excellent performance that extended the lifetime of Ammonia Catalysts in a range from 30% to 215%, HFC was awarded the “Trophy of Excellence in Management and Operation Award”. In recognition and appreciation of previous management, Eng. Hassan Abdel Aleem invited the previous CEO Chemist Adel Al Danaf to join the ceremony of the award received from Johnson Matthey, the well-known Ammonia Plant Catalyst Manufacturer.

Digitization

10

To Serve and Protect

The Information and Communication Technologies (ICT) Department comprises seven engineers who make great efforts to ensure an efficient and secure production process. All factory employees are stakeholders of the ICT department, and they are the main core that the department addresses.

At the HFC ICT Department, the workflow is highly organized and efficient, using a comprehensive checklist when installing any new device. There is a continuous monitoring of all devices, and the entire team is fully engaged in all processes to ensure a smooth production process. The department is one step ahead of the production needs , proving how proactive and efficient it is. At HFC, the strategy of “proactive maintenance” is found to apply maintenance before it is needed. The main target of the department is having zero downtime.

Also, the ICT department has the primary responsibility in preserving the maintenance of computers and other digital equipment, while using them efficiently to reduce costs and increase production. HFC policy ensures that computers are not changed unless they are obsolete, and even when they are no longer functioning, they are collected, and spare parts are stored for later usage or sale.

Computers remained active from 2006 till 2018, which proves the good maintenance and efficient policies at HFC.

2019 was a transformational year for HFC. The ICT department has achieved significant goals during this year. In 2019, ICT at HFC became more advanced, with more services and a full transformation of our software, hardware, and infrastructure. A “Root Cause” committee was created to identify and manage the main causes of problems in our systems. Meanwhile, a “Hazard Study” team was trained to ensure the safety of operations, employees, machines, and the environment. The efforts of the department marked the complete digitization process of the factory and its facilities.
The HFC digitalization process included the update of software and hardware, as well as the development of the “Smart Client” app. An application where managers can access the system anywhere, even outside the factory, to monitor the efficiency of the production process, and develop a system to link the scales to freight.

HFC is the first company in the fertilizers sector to use this technology, which resulted in the shipping operations efficiency, saving time, and supplying customers with schedules and plan. Work is underway to implement a program to follow up shipping from the port and follow up on implementing the plan first-hand. Furthermore, HFC transferred from using ERP System, which will expire after three years, to the latest "Oracle Cloud" system used by all international companies. This transfer allowed the exploit of the existing assets of the server and computers to keep pace with the comprehensive development of the ICT system. Four engineers were trained in Sweden on this new digital project.

In addition, the efforts included the update of the Display mechanisms by installing smart screens instead of traditional display mechanisms, projectors, and equipping training halls with the latest needed technologies, which reflected the professional image of HFC to visitors who come to the factory during training and meetings. This new system decreased printing and increased digitization, which reduces co2 emissions.

One of the main successes of the digitization process is the recently installed Digital Control System (DCS), which works mainly on protecting HFC against cyber-attacks through continuously auditing and reviewing the system to ensure it is free from any threats. The system has two firewalls to provide maximum protection, so if a virus could escape from the first wall, it would be nearly impossible to pass the second wall.

The Digital Control System is a success story for HFC, as HFC was the first company to install such a system. HFC is the pioneer, followed by other fertilizers companies in the market.

Furthermore, a fully integrated Data Center was created for better internet services. It is placed at an optimum location to cover the entire factory. This location was chosen through Google Earth for the most efficient site to ensure the full coverage of the whole premises. The center is equipped with all protection means from Firewalls, Core Switches, and Edge Switches, and the latest technology for data transfer, "VOIP" was used. The Data Center was also protected by a fire detection system and was inaugurated in December 2019.

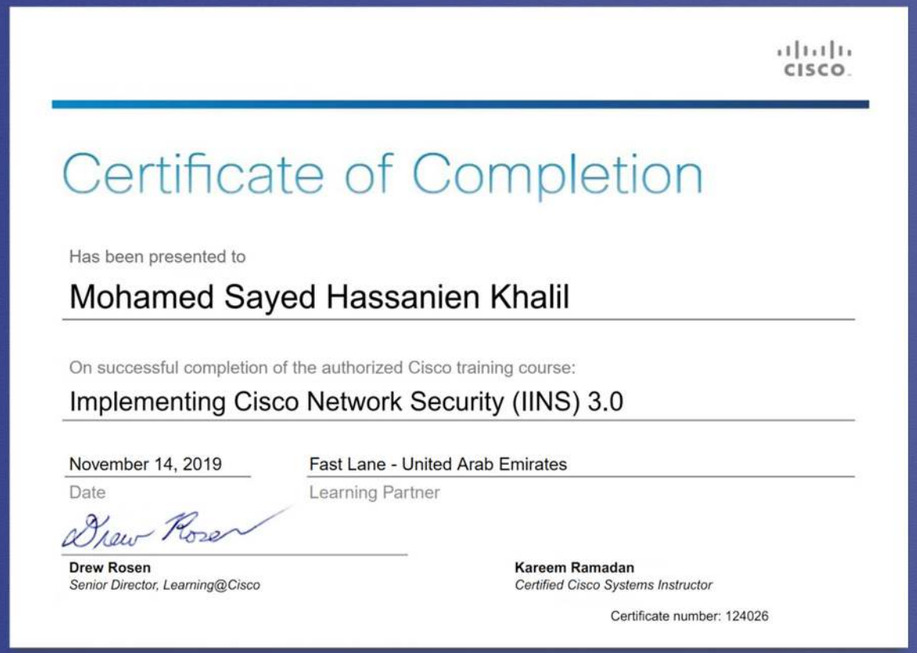
Digitization also included the linking of the firefighting system and control unit, so if the temperature rises in one unit, an SMS is automatically sent to 5 phone numbers to alert them that something is suspicious in the factory premises. This increases the safety of the premises and allows more time for action. Among the recent successes, a mobile application was developed, and screens were installed around the factory showing the layout of production for supervisors to monitor the different production processes.

Due to the importance of digital transformation and its positive impact on the system, a contract has been made to purchase the Delta program, which includes five systems for attendance and departure - personnel affairs - wages - training - the medical aspect, and the system is currently being changed to shift from the paper system to the automated system. Digitization has a huge positive impact on production during crisis times when employees could not be physically available in the factory, and it enables them to work from their homes while ensuring safe, easy, and efficient supervision of the production process. Completing the company's development system for digital transformation and automation of all company reports is currently underway.

Over the digitization project, we needed new infrastructure to increase the efficiency of our production process. Internet networks have been updated using Microwave technology at a speed of 25 mega / s, as well as contracting with the Egyptian Company for Communications on an optical fiber cable from the central to the cabin inside the company. Internet lines in the company were doubled to improve the old central line, an internet leased line was provided, in addition to a 4G line as a backup plan in case of an antenna - terrestrial service outage. Furthermore, new telephone cables have been installed. In 2019, 50% of the factory's computers were replaced with new and better ones. In 2020, the other 50% will be replaced.

Digitization has also ensured securing HFC against any outside threats. Sensors for movement will be installed at equal distances of 100 meters on the factory's outer fences and automatically create a high-volume alarm and lighting to draw attention in the event of a breach of the fence. In addition, mobile cameras are placed in different locations inside the factory's premises at high heights to cover a 360-degree angle and long distances of up to 180 meters for maximum security.

Be Aware ...Connect With Care



cisco

Certificate of Completion

Has been presented to

Mohamed Sayed Hassanien Khalil

On successful completion of the authorized Cisco training course:

Implementing Cisco Network Security (IINS) 3.0

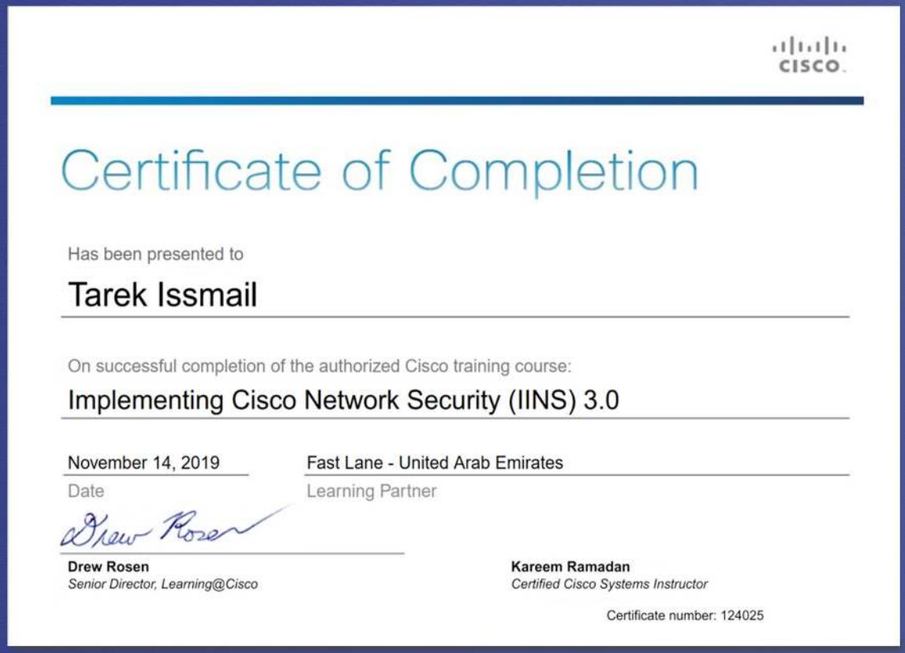
November 14, 2019 — Date

Fast Lane - United Arab Emirates — Learning Partner

Drew Rosen
Senior Director, Learning@Cisco

Kareem Ramadan
Certified Cisco Systems Instructor

Certificate number: 124026



cisco

Certificate of Completion

Has been presented to

Tarek Issmail

On successful completion of the authorized Cisco training course:

Implementing Cisco Network Security (IINS) 3.0

November 14, 2019 — Date

Fast Lane - United Arab Emirates — Learning Partner

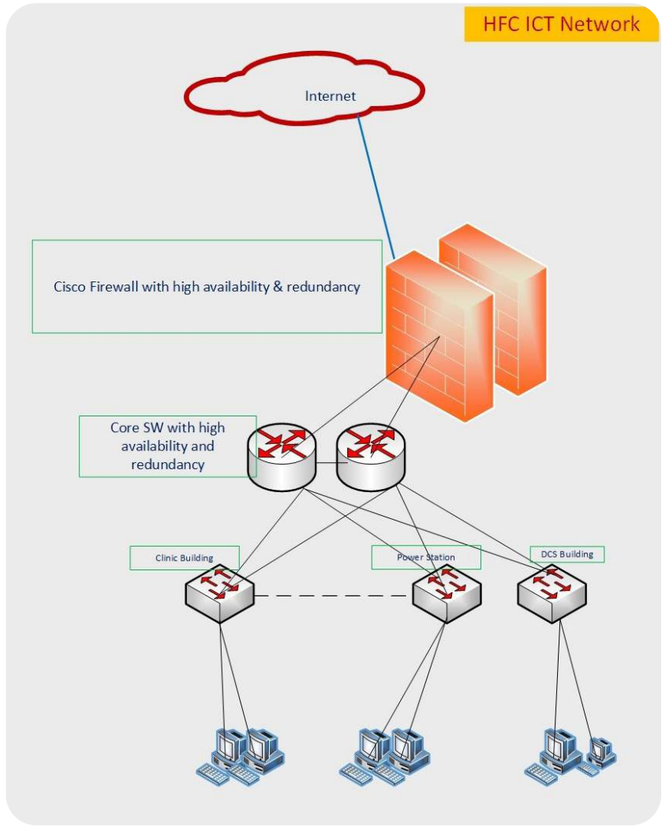
Drew Rosen
Senior Director, Learning@Cisco

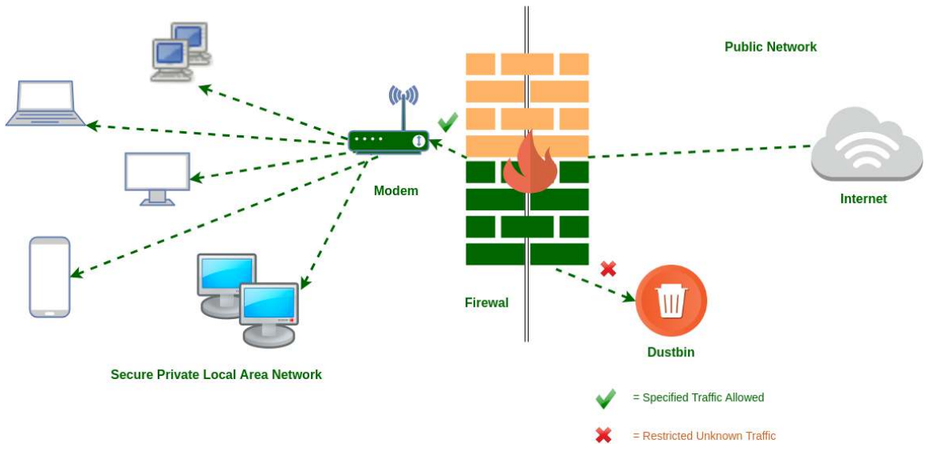
Kareem Ramadan
Certified Cisco Systems Instructor

Certificate number: 124025

Network Security: A Different Game

This type of defense is set up to protect against cyber intrusions and compromised circuit systems. Placing as many obstacles as possible between the intruder and the network could become an overwhelming strategy. Ensuring equipment has the latest software security updates and developing a secure system access method (port security applied at each user) may increase security measures to better protect from everyday threats. Besides, we use the latest technology from Cisco in Firewall to protect our network from any threats.





11

The Champions Leading OUR Success

The Champions Leading Our Success

To win in the market-place, you must first win the workplace.

HFC has a **Zero** Turnover Rate

At HFC, we believe that our employees are our most valuable asset. Our employees are the main reason for our success. Without their loyalty, passion, and creativity, we would not have been able to reach the position we are in today, being one of the market leaders in the fertilizers industry in Egypt. At HFC, we care about our staff's experience in the workplace, and we want them to feel that the factory is their home, not just their workplace. Employees who believe that management cares about them as humans– not just employees – are more productive, more satisfied, more fulfilled. Satisfied employees means satisfied customers, which leads to profitability. The way your employees feel is the way your customers will feel. And if your employees do not feel valued, neither will your customers.

Our values and principles sustain the workflow without prejudice to the company's internal regulations while preserving the rights of the workers and support their skills development.

At HFC, our family is composed of 518 employees, all on full-time contracts that are renewed yearly . In the current financial year, we have hired 45 new employees. In 2019, most of our team is composed of mostly males, and three female employees. We are aware of our gender gap in our staff's composition, so we have taken actions to fill this gap. In 2019 and the coming years, we are keen on hiring more female employees to better gender balance. Although the gender balance is absent, we must admit that the industry is male-dominated worldwide, as the type of job and working shifts are not preferred by women. Comparing with other fertilizers factories in Egypt and worldwide, new female hires at HFC are among the highest ratios worldwide. We aim to change the usual and engage females in the industry. It is worth mentioning that both males and females employees receive an equal salary and remuneration with no discrimination based on gender, only based on experience and efficiency.

Hiring employees and managers from the local community is one of the main goals of HFC. We believe that hiring locals is especially important in running our factory efficiently. Locals are more aware of the environment they live in, the culture of the place, the customs, values, and traditions. They give us insights on how to deal with the surrounding communities and ensure the smooth operation of the production process. Currently, 116 employees of HFC come from Helwan, distributed in the different departments. Furthermore, when locals are appointed in a senior position, where more than 10% of our senior management is composed of Helwan residents , they create trust with their neighbors and families that our operations are not harmful to their environment, on the contrary, we are working to develop the community as a whole.

The administration makes great efforts to maintain the mental and physical health of our employees. We ensure their physical safety by providing them all the necessary training for emergency situation and safety equipment for daily protection in the factory. Not only are we concerned about their physical health, but also, we look after their mental health. We try as much as possible to make sure that they do not face continuous stress inside the workplace. We provide them with a healthy working environment where employees engage with each other to create a warm working place. Furthermore, we try to sustain HFC as a safe working environment, free from any type of harassment, whether physical or verbal. Thus, we schedule multiple activities to strengthen relations between the employees and between the staff and the management.

Celebrating One of our Valuable Employee's Last Day at Work After Reaching State Pension Age

"Loyalty and Ownership" is our Flagship

Since HFC's creation, no employee resigned from his job. They only leave when they reach the state's official pension age. This proves their satisfaction and how HFC has became their second home.

Not only do we care about our employees, but we also look after their families. We have recently signed a contract with "Access", a new health insurance company leading the Egyptian market, and we provided our employee's families with their services. Meanwhile, we have circulated a survey to assess our staff's satisfaction with the provided healthcare services. This survey is anonymous, so employees can freely express their opinions. In this survey, we asked them about the level of medical service provided, the level of services in hospitals, medical centers, private clinics, pharmacies, and their overall experience with these services. After receiving their anonymous answers, we analyze the data to identify what improvements are needed in order to keep our employees even more satisfied.

HELWAN FERTILIZERS CO.
شركة حلوان للأسمدة

Medical Administration

A general Questionnaire to Assess the Employee's Satisfaction with Egypt Medical Care

To achieve the satisfaction of the employees of the company, please fill out the following questionnaire, which aims to know the satisfaction of employees about Enaya Egypt for Medical Care so that we can start the procedures for activating family treatment through Enaya, Knowing that this questionnaire is confidential and a statistical study of the results will be done to achieve the required goals.

Employee Name: _____

Department: _____

Job Title: _____

The level of Services in hospitals:	☐ Excellent	☐ Very Good	☐ Good	☐ Fair
The level of Services in Medical Centers:	☐ Excellent	☐ Very Good	☐ Good	☐ Fair
The level of Services in private clinics & pharmacies:	☐ Excellent	☐ Very Good	☐ Good	☐ Fair
Your overall satisfaction with the service performance:	☐ Excellent	☐ Very Good	☐ Good	☐ Fair

Other Suggestions:

_____
_____
_____

HFC also got the approval of the Board of Directors to cover the medical treatment of retired employees, which shows the company's loyalty towards its employees even after their retirement. Healthcare is provided in partnership with "INAYA EGYPT". This partnership was built as a result of the Medical questionnaire analysis that showed HFC employees' dissatisfaction with the medical service provided by Access Medical Company. Other than the professional healthcare provided to employees, there is an equipped ambulance at HFC premises ready with all necessary first aid supplies to serve employees in times of emergency and transport them to the nearest hospital if the injury requires further treatment. In addition, three rooms are available and fully equipped at HFC for all first aid injuries. One of our success stories is that the medical services department has recently been renovated and added with more staff. Currently, there are one doctor working from 7:30 am till 3:30 pm and always available on call, four nurses, and two administrative workers available during all shifts to perform the necessary medical treatments needed.

Serving our Employees

Other services provided to our employees and their families include discounted trips to various resorts inside and outside Egypt. Our purpose is for our people to feel content and fulfilled so they can keep increasing their productivity. Furthermore, we provide our staff with discount rates for Umrah trips for them and their families during various religious holidays throughout the year. Employees have the opportunity to pay the discounted price of the trips in installments. Hence, we decrease the financial pressure on them and their families about paying the fee immediately.

Furthermore, HFC provides transportation for employees to reduce their transportation costs and time. Recently, the administration signed a contract with a transportation company to provide HFC with the latest buses to give employees a better commute experience as studies have proved that the less stress an employee experiences on his way to his workplace, the more productive he becomes, and this has highly influenced our philosophy.

Besides transportation, HFC also has a restaurant that provides meals at a hugely discounted price for the factory's employees. The meal cost is almost equal to the production cost. The restaurant provides high-quality and balanced meals to give the employee the needed energy throughout the working day. Furthermore, if an employee stays after working hours to finish tasks, the administration provides him with a free meal.

Cooperative Society for Building and Housing

HFC has also created a "Cooperative Society for Building and Housing" for the Employees of Helwan Fertilizers Company. Established in 2018, the cooperative is a joint association of Helwan Company employees. All employees at HFC have the opportunity to become members without any kind of discrimination. The association's scope of work is the governorate of Cairo and multiple summer resorts. Its main objective is to provide integrated housing complexes with services for all members at a reasonable price such as health, education, social, and entertainment services, among others. This initiative helps us achieve social inclusion for HFC employees.

Training and Development

Great attention has been paid to training due to its importance and positive impact on improving job performance and the work mechanism. Training courses varied, including practical and technical training for new workers, as well as implementing specialized courses inside our factories to improve the efficiency of workers. Each employee gets an average of 22 hours of training per year (404-1). At HFC, a training unit is responsible for setting the training strategy and implementing it, asking the different departments what are the needed trainings to make available those programs, and the department also suggests training venues and other ideas related to the different training programs.

> **The only thing worse than training your employees and having them leave, is not training them and having them stay.**
>
> **Henry Ford**
> founder of Ford Motor Company

Comprehensive Quality Training

Training Room Facility

HFC Employees attending Training on ISO 22301:2012 Business Continuity Management Standard for Companies and Industrial Organizations

The company has participated in specialized courses abroad (Germany - Canada - France - Emirates - Sweden - Oman - Morocco - Bahrain - Malta) in order to increase the staff's technical skills. HFC also sends a number of employees to similar companies to exchange experiences and knowledge. Specialized courses were implemented for the first time in our factory for the participation of the largest possible number of workers in identifying risks and analyzing them. In particular, they were trained on conducting, implementing, and following up on the specification items for quality, environment, safety, and occupational health - the concept of the organization's context, performance indicators and how to deal with them (KPIs). In addition to making a bylaw for training for the first time in the company's history, HFC aimed to double the training budget to 167 thousand dollars, which is nearly six times the value spent on training in the previous year. This development will reflect its positive impact on improving production efficiency and providing the budget needed to bring foreign experts.

On the job training inside HFC

Training Outside HFC

Training on Internal Audit for Standard of General requirements for the competence of testing and calibration laboratories ISO 17025:2017.

Business Continuity Training

"The Distance Between Those Who Achieve Their Goals Consistently and Those Who Spend Their Lives and Careers Merely Following is : Going "The Extra Mile"

12

Our Economic Approach

Supporting Growth & Affirming Sustainability

The Financial Sector at HFC works toward affirming the sustainability of our business. It is known for its efficiency, and punctuality. Our financial figures during the reporting period compared to the previous year's show our upward trend. The department manages our finances to provide all required financial commitments in a timely manner. During the reporting period, Investment income of about $ 17 million was achieved due to the efficient management of the financial portfolio in terms of diversification of investments and distinct interest rates in light of the low-interest rates at the end of the year. To ensure that all required funds are available for the overhaul during 2019, the department provided us with all necessary information about planned and emergency needs.

All company obligations are paid on time without delay or fines.

Financial Management is an essential part of the economic and non-economic activities, which leads to efficient procurement decisions and utilization of finance in a profitable manner. Previously, the financial management was a part of accountancy following the traditional approaches. Nowadays, it includes innovative and multi-dimensional functions. Due to industrialization, financial management has become a vital part of the business impact. As we are moving towards the digital age, our financial management personnel have been trained to use the Oracle system in preparation for replacing the manual system during the year 2020. To support the decision-making process in developing future plans and targets, a quarterly financial position is prepared timely. Besides, the financial department plays an effective role in evaluating the feasibility studies of future projects and stating their impact on the company's financial position.

Internal Control and Finance

As part of our responsible approach, HFC has an internal audit unit to review shareholders' rights; this is a step before the external audit by the Accountability State Authority. The department is also responsible for the performance appraisal for all departments and employees to retain the highest calibers. At HFC, internal audits act as preventative measures and proactive units to avoid any corruption in the financial statements of the organization. Furthermore, we respect international laws and regulations related to exports., HFC applies international agreements for its exports, such as the Bilateral agreement with the EU.

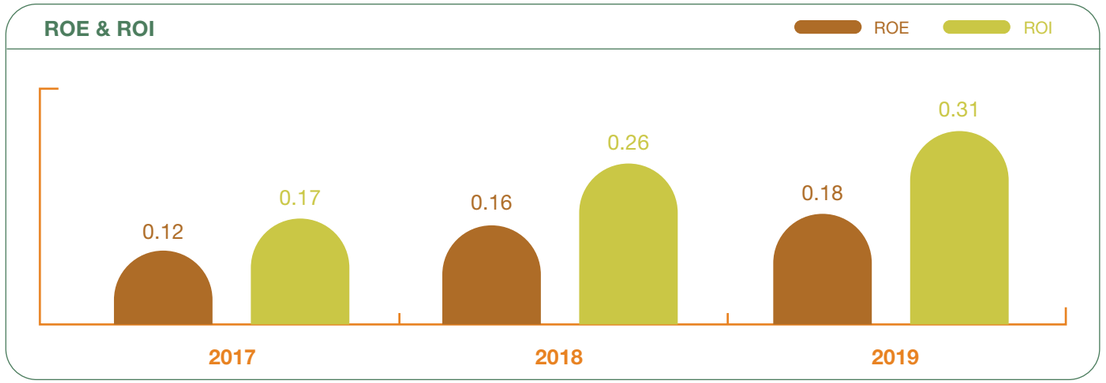
0 cases of corruption have been reported during the reporting year

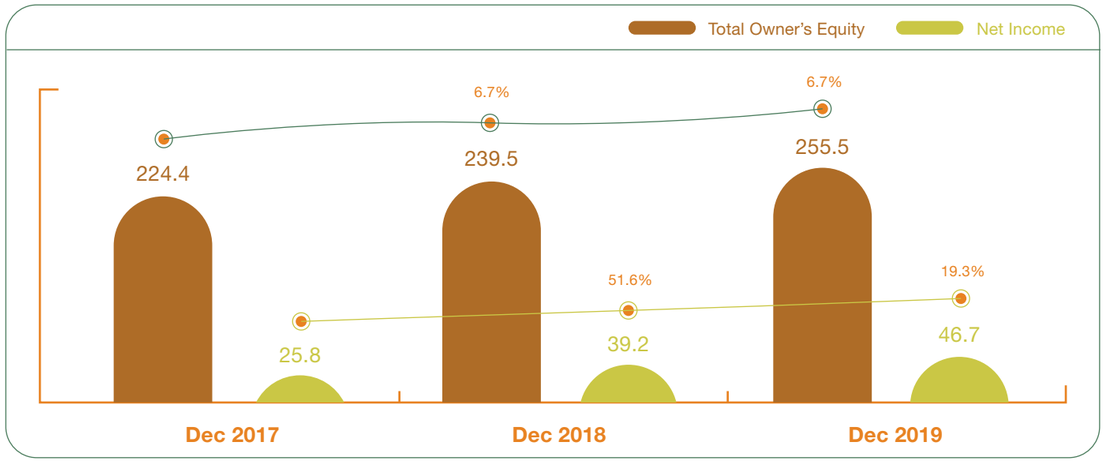
0 government fines have been imposed due to non-compliance to any of the loans and regulations during the reporting year.

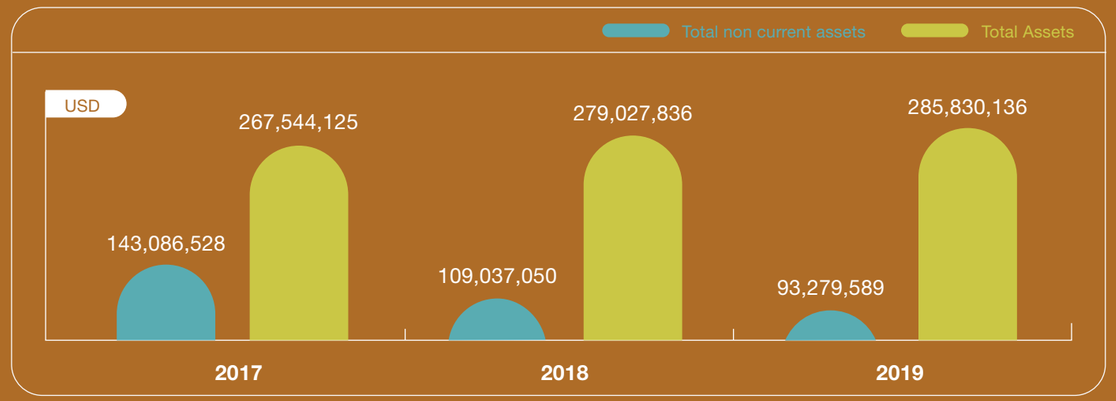
Financial Solidarity and international presence

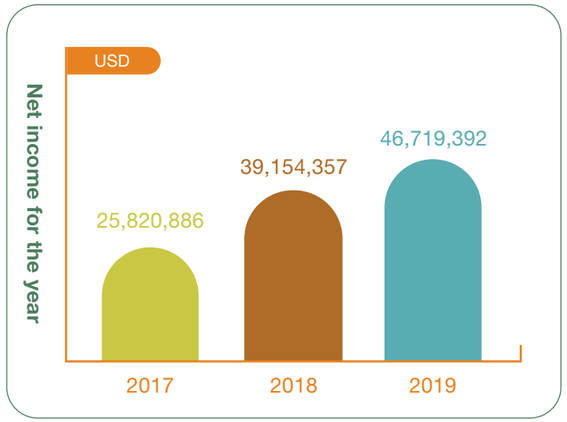
One of our income sources is derived from indirect profit from the dispatch of the shipment or the vessel. When HFC vessel arrives at a foreign port, the unloading of the vessel is very fast and efficient due to selecting the most efficient transfer carriers, and thus, reducing our costs.

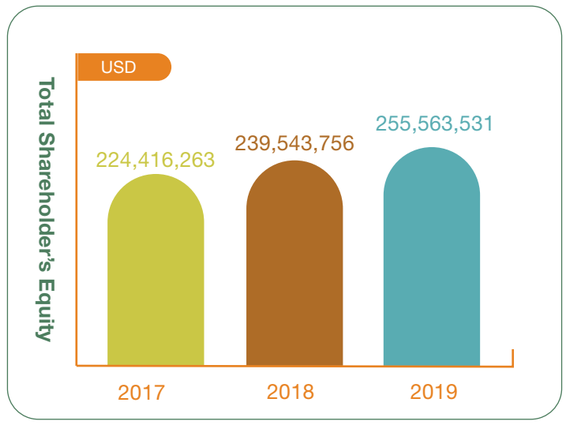
Our Figures tell the story

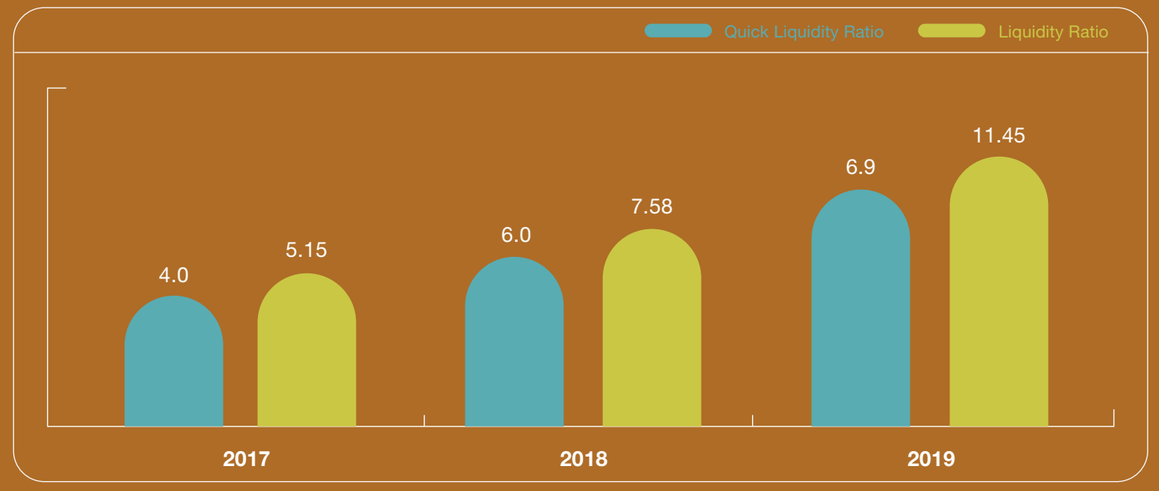


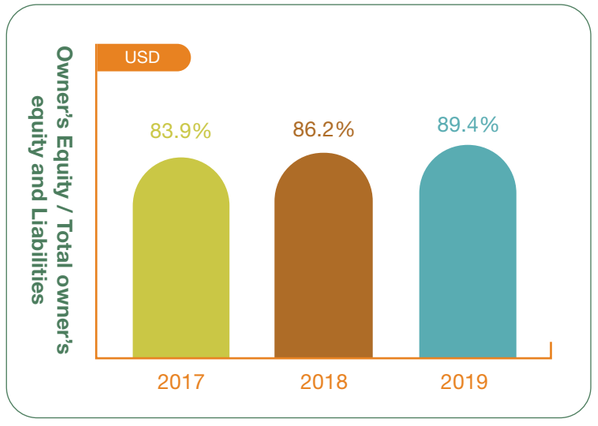












	2017	2018	2019
Ratio of wages to total expenses	5.64	5.45	6.38
The ratio of wages to cost of sales	6.03	5.90	7.04
Income tax paid	8,729,068	12,001,352	6,229,047
Total Revenue	159,279,875	166,988,833	178,365,436

Our Economic Impact On the Macro and Micro Levels

A looking forward statement: Our Future Path

We envisage the future of our organization having a clear purpose of sustaining value creation and revenues for our stakeholders, including our top management, shareholders, and employees. What makes us ambitious for our vision and strategic plan is the high status of the company in the fertilizer's market in Egypt and abroad, along with the customers' remarkably positive testimonials about our products quality and professionalism.

The company's management is examining all the elements of success to reach the establishment of a Fertilizer Production Complex. This achievement will support us to produce various fertilizers products so that Helwan fulfills all the customers' requirements. The company believes that the time has come to study and start the implementation phase in light of the availability of various success factors. For instance, the availability of natural gas, which is the main raw material for the production, the availability of space that enables the company to expand its projects, as well as the availability of the necessary expertise, mainly from the young employees. All these factors can lead us to success.

These Mega Projects require the cooperation of all shareholders in order to achieve this ambitious goal and, to this end, maximize our company's value and profitability.

Projects on the Runway

Methanol Project

The project aims to establish an integrated industrial complex for the production of methanol and ammonia, in cooperation with Abu-Qir Fertilizers, Chemical Industries Company, and Al-Ahly Capital Holding. In this regard, an agreement of understanding has been signed among the three parties. A specialized committee has been formed including all parties under the supervision and direction of senior management.

Where methanol is used in many petrochemical industries, as well as ammonia, which is the largest input in the fertilizer industry, the production will be allocated for export after the local market is saturated, as it is planned to produce one million tons annually of methanol and 400 thousand tons of ammonia annually. We intend to establish the project on a plot of land in the industrial zone of the Suez Canal within the port of Ain Sokhna, where the industrial zone is in a distinguished strategic location, considered as the gateway to the African and Asian continents. The project will provide about2000 direct job opportunities and about 10,000 indirect job opportunities. Since natural gas is one of the critical inputs in the project, about 3.9 million cubic meters of gas will be consumed. Thus, the Natural Gas Holding Company has been contracted to provide the required quantity, and the contract will be signed in the near future.

Reverse Osmosis (R.O) Project

This project aiming to purify the water used in the industrial process and reduce the loads in activating the demineralization unit. A specialized team was transferred to Alexandria Fertilizer Company to find out the feasibility of that unit applied in the factories. What we found is that the project was feasible and led to the reduction of the chemicals used. Specialized companies in establishing a R.O unit provided offers at an investment cost of about 700 thousand dollars. The operating life of the unit is about 15 years, which reduces costs by nearly 128 thousand dollars annually, thus achieving a payback period within five and a half years.

Ammonium Sulphate Project

Helwan Fertilizer Company (HFC) has a surplus ammonia production of around 150 tonnes per day (tpd) or 50,000 tonnes per year (tpy). The chairman and CEO of Helwan Fertilizer Company is currently examining the implementation of Ammonium Sulphate granules project as the best option to utilize the excess ammonia. Ammonium sulphate will be produced with sulphuric acid purchased locally or via the construction of a sulphuric acid unit. On this basis, HFC will conduct a feasibility study to determine the market, technical and financial attractiveness of the Project in more detail.

Our Market Presence

As part of our commitment to the national development agenda, and the global Sustainable Development Goals, HFC sells 35% of its production to the Ministry of Agriculture at a subsidized price, as part of our contribution to the national Food Security. The remaining production is oriented toward exports. In this way, we contribute to the provision of foreign currency to the government and sustain our role to support agriculture and food security worldwide.

HFC's presence is not limited to the domestic market, but it is extended to Europe, the Mediterranean region, Africa, North America, Latin America, and Asia. We have developed a strategic plan for sales and marketing to be implemented by our team. It offers annual, monthly, and weekly action activities in accordance with the sales forecast, the marketing map, and the study of offers and demand throughout the year. The outcome is revisited, while follow-up and amendments are done to reach the optimal marketing rates.

Due to the fluctuations of market prices in relation to the quantities, and the increasing competition, HFC has taken many measures and decisions to meet the challenges posed by the markets., We were able to attract new customers and preserved the market share of Helwan Fertilizer Company. HFC exported 60 thousand tons to Sudan to several customers for the first time since its inception, and new markets have opened, for example, in Canada - Brazil - Argentina.

We have examined different sales alternatives and competitive advantages which contributed significantly to increasing sales and entering new markets. Experts and specialists in fertilizers conduct continuous research to know the prices and the volumes traded so that the changes are kept up on the hour.

Furthermore, we unified the sales and marketing teams, and we provided them with comprehensive training to reach HFC standards. The team has also been encouraged to participate in international conferences and exhibitions. Specialized training courses in sales and marketing were also provided, as well as a specialized program to manage the sales process efficiently.

Eng. Hassan Abdel-Alim, the CEO of Helwan Fertilizers talking to the CNBC Channel in the Arab Fertilizer Association Exhibition in front of HFC Both.

As a result, we improved our after-sales service and responding to customers' requests. This had a direct positive effect on engaging again with old customers, gaining their trust, and continuing our working relations. We have also achieved to manage logistics efficiently and increase freight rates. Therefore, this time saving contributes to the company's revenues as an extra stream of income.

Local Sales and Export:

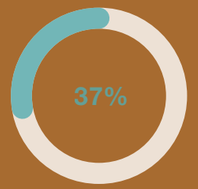
Ammonia:
It is a mainly used to produce urea fertilizer, however, 100 tons/day will be sold to the local market.

Urea fertilizer:
Urea is sold as a final product according to the customer demands from the local market of the world in Bulk quantities, Bags of 50kg capacity, Big Bags of 1000 kg. Nitrogen is created as a byproduct and is sold at local market to a company named Godaco.

HFC factory storage capacity is 30,000 tons. However, only 5,000 to 10,000 tons are stored due to the very dynamic selling cycle that reduces inventory accumulates. The storage quantities also depend highly on the prices and market dynamics. So sometimes, the inventory increases or decreases based on exports demand, 285,000 tons through sea ports of Damietta, and 74,000 through Adabeya, as well as 513 tons via land-roads to Sudan.

HFC Sales Reflects a Market Share as Follows:

Is HFC's Share in the International Market from Urea Production.



Of our Production is sold Subsidized to Farmers through the Ministry of Agriculture

Is HFC's Share from Egypt Local Private Market.

is HFC's Share of Egypt Total Exports from Urea Production.

Our Reliable and Sustainable Supply Chains

Supporting the transition to sustainable supply chains has become a must to ensure compliance with related laws and regulations and support sustainable business conduct principles at the national and international levels. In this regard, HFC follows a supply chain sustainability policy that focuses on ensuring quality, timely procurement, cost effectiveness, and adherence to all legislative rules and guidelines. Our procurement policy encourages open and fair competition. HFC has developed the following guidelines for all activities related to procurement and material handling while emphasizing economic, social, and environmental integrity throughout its supply chain.

Purchasing unit is responsible for timely foreign and local purchases while remains to guarantee efficient production flow. HFC deals with multiple suppliers to raise awareness about supply chain risks. Furthermore, our supply chain has been recently updated to improve efficiency (disclosure: changes in the supply chain). We import raw materials only from reliable suppliers as to sustain our products quality and organizational reputation.

All suppliers of raw material inputs and spare parts are fully reliable and have not changed since HFC started, although in some cases, they may cost us more.

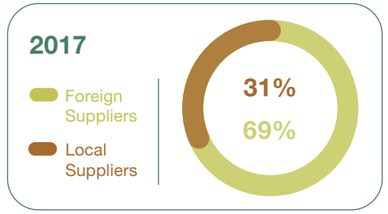
Responsible Consumption:

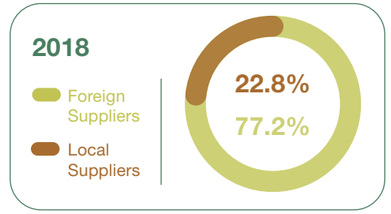
At HFC, employees have a sense of ownership, and they care about the efficient use of machinery, to avoid increasing the costs of production.

Efficient and Sufficient Storage:

There is a sufficient number of spare parts stored to be available when needed, as each day with the stop of production, huge financial losses occur, so HFC ensures the efficient production flow by having the needed spare parts which are also shared with other fertilizer companies when they need them.

With Pride Local Supply Chain





Our Community

13

04 Good Neighborliness and Sustainable Development

Good Neighborliness and Sustainable Development

Total CSR Activities for 2019

$429,000

Proudly carrying the name of the city where it stands, Helwan Fertilizers Company has always been proudly affiliated with the people of Helwan and highly respectful of the social fabric of this place. It is embedded in the company's ethos that no success could happen without ensuring that you are a good neighbor and you create positive impact on the surrounding areas and communities. Gaining profits is always important, but it is equally important to leave a positive impact on our entire community. At HFC, we care more about people than about numbers.

We live in a world in which we need to share responsibility. It's easy to say its not my child, not my community, not my world, not my problem. Then there are those who see the need and respond. I consider those my heroes.

Fred Rogers

The company has raised its slogan "good neighborliness and sustainable development" and we applied it on the ground through contributions in many charitable and development work in the surrounding and adjacent areas. Our contribution expands in many sectors, including education, healthcare, construction and infrastructure. We have also conducted many other initiatives to raise the living standards of the nearby communities. We have partnered with multiple NGOs and civil society organizations that they supported us throughout this journey to offer to people more opportunities to flourish and live a more decent life. All our initiatives show our tremendous support and adoption of the United Nations' global efforts in its 2030 Sustainable Development Agenda and Egypt's vision 2030.

Healthcare Activities

$153,000

were directed towards the healthcare sector

We make a living by what we get, but we make a life by what we give.

Winston Churchill

At HFC, we know that health is the real wealth, and we and believe that it is our moral duty to improve the health of the weakest in the society. Although the government is already undertaking multiple initiatives to improve health of the Egyptian population through different campaigns aiming at ending Virus-C in Egypt, still moore efforts are needed due to the population size and growth rate.

HFC had started the journey for a healthier community years ago before it was even on the United Nations agenda. Below are multiple examples of contributions that helped make the lives of many people healthier and happier.

HFC has supplied various nearby hospitals and medical centers with medical equipment, machines, and other facilities needed. This is part of our community participation framework to contribute to the patients' treatment from the sons of the Tebbeen region and its environs surrounding the company.

HFC Donated by all the Instruments of the Department of Physical Therapy for adults and physical rehabilitation of children with special needs to serve the population of its vicinity.

Our contribution includes wheelchairs, electrocardiogram machine, oxygen cylinders, eye operations, sterilization devices, sonar devices, dialysis machines, dialysis filters, x-ray machines, computerized vision measuring device, medicine cabinets, coolers for hospitals, and physiotherapy department establishment. Also, we have supported individuals from the local communities to perform multiple operations and improved the infrastructure of nearby hospitals, such as El Tebbeen Central Hospital, Civil Society Organization of the People of Tebbeen, Helwan Fever Hospital, El Tebbeen First Medical Center, Rural Society Development Association in Kafr Trakhan, among multiple other hospitals, and civil society organizations.

Educational Activities

$67,000

were directed towards the Educational sector

At HFC, we believe that “A father gives his child nothing better than a good education”. So, we feel responsible for our neighboring communities the same way a father is responsible for his child. For this reason, we have dedicated a large percentage of our CSR budget towards better equipping the schools around our area to give students more quality education and provide them with knowledge and skills to be the future leaders of our beloved Egypt.

As we work to create light for others, we naturally light our own way.

Mary Ann

The company's management focuses on the human capital development through various capacity-building programs . In that matter, HFC has generously invested in the following activities: fully paying school fees for students in need at all levels of primary, intermediate, and secondary education, buying school supplies and uniforms for orphans, improving the infrastructure of schools through installing roofs, windows, door, fixing the plumbing facilities, and building new classes and offices, providing the needed furniture like chairs, desks, benches, boards, and the electric devices as fans, computers, and other necessities.

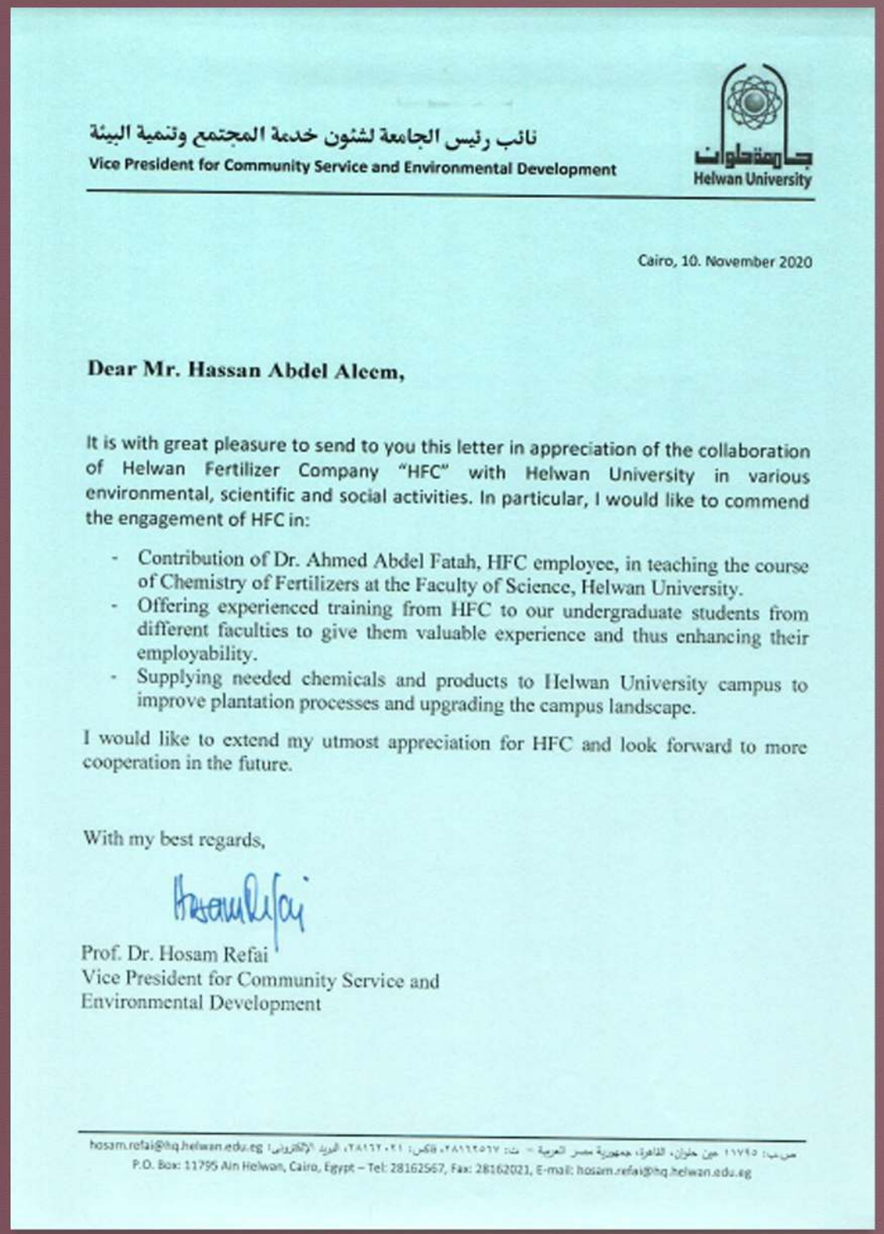
Some of the schools that we have supported are the Al-Salb Preparatory Schools for Girls in Tebbeen, Al-Tala'ea Elementary School in Tebbeen, Al-Atiyat Primary School in Al-Saf, and Al-Aqwaz Elementary, Al-Attiyat Elementary School, among others. Furthermore, HFC donated school supplies for the students of Virgin Mary church, Evangelical church, Mary Gerges church, among others.

In addition, HFC has largely contributed to building religious schools that teach students multiple subjects and improve their skills. This initiative has been done in partnership with numerous civil society organizations through the following donation: 13.5 tons of steel, 33 tons of iron, 169 tons of cement, and 500 meters of carpet, among others.

Awarding head of Helwan Fertilizers Company for his Support to the Educational Process

•Dr. Majed Negm, President of Helwan University, honored Engineer Hassan Abdel-Ali, Captain of Suez Engineers, and Chairman of the Board of Directors of Helwan Fertilizers Company, was awarded for his community efforts, participation and active role in supporting the educational process. He was granted the armor of the university due to the company’s efforts in paying the university fees and the university city expenses for 1352 students in financial need in the various colleges of Helwan University. In detail, the company paid the university fees for 1161 students and the university city expenses for 191 students of Helwan University.

Serving Our Community.
A Testimony of Helwan University



نائب رئيس الجامعة لشئون خدمة المجتمع وتنمية البيئة
Vice President for Community Service and Environmental Development

جامعة حلوان
Helwan University

Cairo, 10. November 2020

Dear Mr. Hassan Abdel Aleem,

It is with great pleasure to send to you this letter in appreciation of the collaboration of Helwan Fertilizer Company "HFC" with Helwan University in various environmental, scientific and social activities. In particular, I would like to commend the engagement of HFC in:

- Contribution of Dr. Ahmed Abdel Fatah, HFC employee, in teaching the course of Chemistry of Fertilizers at the Faculty of Science, Helwan University.
- Offering experienced training from HFC to our undergraduate students from different faculties to give them valuable experience and thus enhancing their employability.
- Supplying needed chemicals and products to Helwan University campus to improve plantation processes and upgrading the campus landscape.

I would like to extend my utmost appreciation for HFC and look forward to more cooperation in the future.

With my best regards,

Prof. Dr. Hosam Refai
Vice President for Community Service and
Environmental Development

hosam.refai@hq.helwan.edu.eg :البريد الإلكتروني ت: ٢٨١٦٢٠٢١، فاكس: ٢٨١١٢٥٦٧ – مصر العربية، جمهورية القاهرة، حلوان عين ١١٧٩٥ :ص.ب
P.O. Box: 11795 Ain Helwan, Cairo, Egypt – Tel: 28162567, Fax: 28162021, E-mail: hosam.refai@hq.helwan.edu.eg

Sports Activities

As it is scientifically proven how sports have huge positive effects on both the mental and physical health of individuals, HFC has kept the youth club's renovation on the top of its priorities. Sports might be a less important topic on the agenda of private or public institutions and corporations, while some might feel that the poorest of the society have more important needs and demands than having a club or youth center in their area. However, at HFC, we believe that there is a more important value for sports. Hence, building and renovating those centers are our way to contribute in building a better society, at HFC, we take the initiative to support youth spending their energy and spare time in sports which is beneficial to both their physical and mental health.

$1,700
were directed towards renovating Youth centers

Contributions in the sports sector were mainly directed towards raising the capacity and efficiency of youth centers in the local and surrounding communities. This achievement was through fixing the plumbing work, installing roofs, doors, and windows, and buying the needed equipment.

NGOs and Civil Society Support

$308,000
were spent on meals, supplies, and donations to NGOs.

Due to our deep belief in the importance of philanthropical activities by large corporations and stemming from our moral duty of improving the lives of our neighboring communities and the indigenous population of Helwan, we have partnered with multiple local NGOs and civil society organizations to aid us in providing the wants and needs of the underprivileged in the surrounding areas of the factory.

> **Only a life lived for others is worth living.**
>
> **Albert Einstein**

Our donations and initiatives include multiple activities, that addresses our local community needs such as meals, blankets, furniture and fixtures, house supplies. We also participate in supporting NGO's with all their needs such as supplies, fixing infrastructure as water pipes, electricity malfunctions, and others.

HFC had donated the following to civil society organizations to increase their capacities and efficiencies to better serve the society: furniture such as beds, chairs, coaches, desks, and electric equipment such as stoves, washing machines, refrigerators, and electric wheelchairs. In Addition, the company distributes 1700 meals monthly to the neighboring communities through partnerships with multiple organizations.

Examples of partnerships with civil society organizations include Association of Goodness and Hope in Tebbeen, Al Shark Charitable Society, The Egyptian Company for Textile Trade, The National Assembly of Egyptian Women, among others. Furthermore, HFC has a direct monetary contribution to The Ministry of Interior and The Military Intelligence Administration through donating 300,000 LE to each to be distributed to the families of martyrs who are now unable to support themselves.

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	Reporting Practice	
102-45	Entities included in the consolidated financial statements	Only HFC is included in the consolidated financial statements
102-46	Defining report content and topic Boundaries	4, 5
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102-48	Restatements of information	Not Applicable
102-49	Changes in reporting	No changes in reporting. First sustainability report for HFC
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405-1	Diversity of governance bodies and employees	42, 43, 140, 142
405-2	Ratio of basic salary and remuneration of women to men	140
406-1	Incidents of discrimination and corrective actions taken	No incidents of discrimination were recorded during the reporting year
408-1	Operations and suppliers at significant risk for incidents of child labor	No Child labor at HFC or any of its suppliers
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	No forced or compulsory labor at HFC or any of its suppliers
411-1	Incidents of violations involving rights of indigenous peoples	No indigenous people violation incidents were reported during this year
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Independent Assurance Statement

To: Eng. Hassan Abdel-Alim
Chairman and Managing Director
Helwan Fertilizers Company

Introduction

DCarbon is a leading sustainability and environmental consultancy based in Egypt and registered under the Egyptian law no. 159 for the year 1981 and its executive regulation. DCarbon assists public and private organizations in understanding and addressing their economic, environmental, and social impact. DCarbon is a member and partner with multiple global establishments in the field of corporate sustainability. We are a certified training partner of the Global Reporting Initiative (GRI), a GRI Gold Community member, and an official supporter of the Task Force on Climate-related Financial Disclosures (TCFD).

DCarbon has been engaged by the **Helwan Fertilizers Company (HFC)** to perform an independent assurance on its First Year Sustainability reporting process ('the Report') to evaluate the adherence to the GRI reporting principles and disclosures in accordance with the **GRI Standards: Core option**.

Assurance Scope, Boundary and Limitations

Given the HFC's position and its pivotal role on the national level, while considering the extent of the National Reform Programs undertaken by the Government of Egypt (GoE), the scope of assurance has included data and information for the reporting period between 1st of January 2019 to 31st of December 2019 for the Company's operations in Egypt, as well as historical and multiple descriptive overviews of the national context.

The boundary of the report comprises data and information captured HFC's operational business lines and several regulatory publications and data. The boundary equally includes the Company's Head Office support functions and stakeholder engagements as part of this assurance and as indicated in the report.

The assurance did not cover the following:

- Data and information outside the reporting period indicating looking-forward statements by HFC
- Verification statements indicating testimonials, opinions, success stories, and/or aspirations
- Verification of claims (limited to data and information presented)

Assurance Methodology

The assurance procedures and principles used for this engagement were drawn from back-end reviews and data verification conducted by the assurance team while taking into consideration Egypt's National Sustainable Development Agenda 2030 as well as related industry regulations. The nature, time and extent of procedures developed by the assurance team depended on its engagements with the Company, the provided data, and the approval of the HFC's Board of Directors.

The Company was responsible for the identification of material sustainability issues, establishing and maintaining appropriate internal performance management and the relevant internal control systems for the reported data.

Evaluation of the adherence to the Global Reporting Initiative (GRI) Principles and Disclosures

Assurance procedures to obtain evidence about the reliability of the disclosures:

Review of strategic directions, internal policies, and procedure documents as provided by the Company.

Review of materiality and supervise stakeholder engagement framework and activities as implemented by the Company.

Assessment of procedures used for data collection and reporting process in accordance with the GRI Standards, including data collection through surveys, questionnaires, and/or writing prompts; where applicable.

Evaluation of processing and monitoring mechanisms of data collection required for disclosures.

Verification that the report has been prepared in accordance with GRI Standards: Core Option and GRI Topic-specific Disclosures of material topics as listed in the report.

Review of the Report to ensure that there is no misrepresentation of disclosures as per the assurance scope and findings.

Level of Assurance

The procedures performed in a limited assurance engagement are less in extent than those performed for a reasonable assurance engagement.

Reasonable Assurance was performed for disclosures about the following: governance, compliance and risk management, policies, stakeholder engagement practices, materiality assessment, scale of the organization, products and services, market presence, macroeconomic/national impacts, and social investment-related activities.

Limited Assurance level was performed for disclosures about financial performance, employees and procurement practices.

Assurance team

The assurance team consisted of DCarbon's multidisciplinary independent team of experts in auditing environmental, social and economic information and abiding by our values of integrity, confidentiality, professional competencies, objectivity, and due attention.

Sustainability, Risk and Materiality Audits: Dr. Ehab Shalaby
Economic Audit: Dr. Ahmed Yahia Belal
Environmental & LCA Audit: Dr. Nasser Ayoub
Social, Strategy and Governance Audits: Ms. May Elwany
Research and Analysis: Mr. Mahmoud Gamal El-Din

Conclusion

On the basis of our combined assurance engagement, considering the risk of material error and all necessary explanations received from the Company, we confirm sufficient evidence to our assurance conclusion. Based on the activities performed and evidence received, the Report:

Provides a credible and fair representation of the organization's sustainability profile and an application of the Global Reporting Initiative Principles.

- Includes data statements and figures that achieve an adequate level of reliability and accuracy.

Our assurance findings also provide confidence that **Helwan Fertilizers Company** has prepared this Report in accordance with the **GRI Standards: Core option**.

On behalf of the assurance team
January 16th , 2021
Cairo, Egypt

Nasser Ayoub, Ph.D.
Life Cycle Assessment Expert
Lead Report Auditor

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