Environmental and Social Impact Assessment

ESIA

Assiut Hydrocracking Complex (AHC) Project

Non-Technical Summary of ESIA

June 2021

ANOPC
ASSIUT NATIONAL OIL PROCESSING COMPANY
شركة أسيوط الوطنية لتصنيع البترول

Assiut National Oil Processing Company (ANOPC)

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0.1 INTRODUCTION

This ESIA study is being undertaken after early works phase of the proposed Assiut Hydrocracker Complex (AHC) project aiming to identify the key environmental and social issues to Project Affected People (PAP) and the Project and suggest risk mitigation options.
The objective is to provide environmental and social assessment to help the project designing team for a successful integration of the Best Available Technologies (BAT)" Best Available Techniques (BAT) Reference Document for the Refining of Mineral Oil and Gas-2015" and control measures to maximize the Project's environmental and social performance. Meanwhile, intended as basically to the finalization of the financing arrangement with SACE and harmonization with environmental laws and legislation.

0.2 PROJECT BACKGROUND

The new AHC refinery complex will convert "Assiut Oil Refinery Company" ASORC's low- value fuel oil in Upper Egypt (after natural gas distribution in the country will be finalized) into more valuable products, while improving ASORC's middle distillates quality as kerosene and diesel and its design will be based on the "zero fuel oil" concept and the following production targets:

- Maximization benefits from the ASORC's Infrastructure and Facilities.
- Maximization of diesel production, in order to satisfy the needs of the local market and export the surplus abroad.
- Achieve many economic, social and environmental benefits.

0.3 PROJECT LOCATION

The proposed AHC project will be lies within current the fence of the petroleum district. Accordingly, a Social Impacts Assessment (SIA) or a due diligence Study should be prepared to define a list of impacts encountered, how they were mitigated and the compliance of mitigation measures with IFC requirements. The location of the AHC complex lies 23 km western of Assiut City, which is capital Assiut governorate – Nile valley. Assiut governorate about 400 km southern Cairo, it is located on both sides of the Nile River with a length of 160 km. The valley width averages 10 km – 20 km between the Eastern desert and the Western desert. Assiut governorate occupies a middle location among the governorates of Egypt (see figure "1" shows the project location).
AHC location can be accessed from Cairo by taking Cairo – El Fayoum road from El Remaya square for about 19 km to reach the entrance of Cairo – Assiut western road, taking this road for about 354 km. Follow road leading to Assiut city for about 12 km, before turning left heading to the road leading to Petroleum area and Gahdem/Azizia villages for about 4 km. From the entrance of Petroleum area, you have to drive 2 km southeast direction to the proposed location of AHC project (see figure "2").

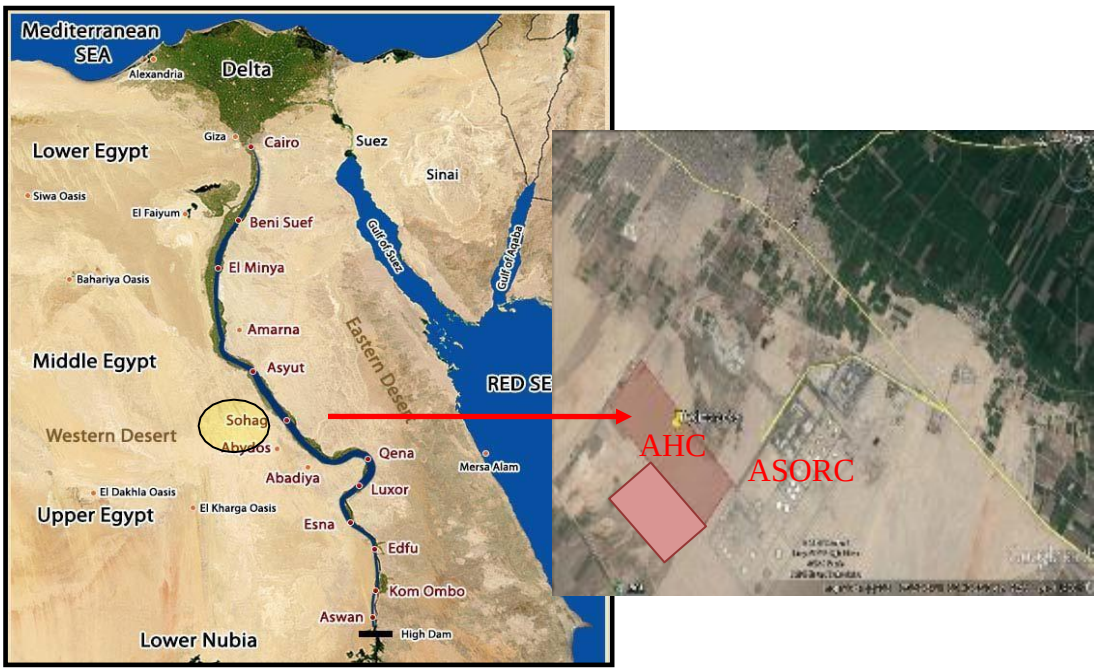

Figure (1) - Location of the proposed AHC Project Location

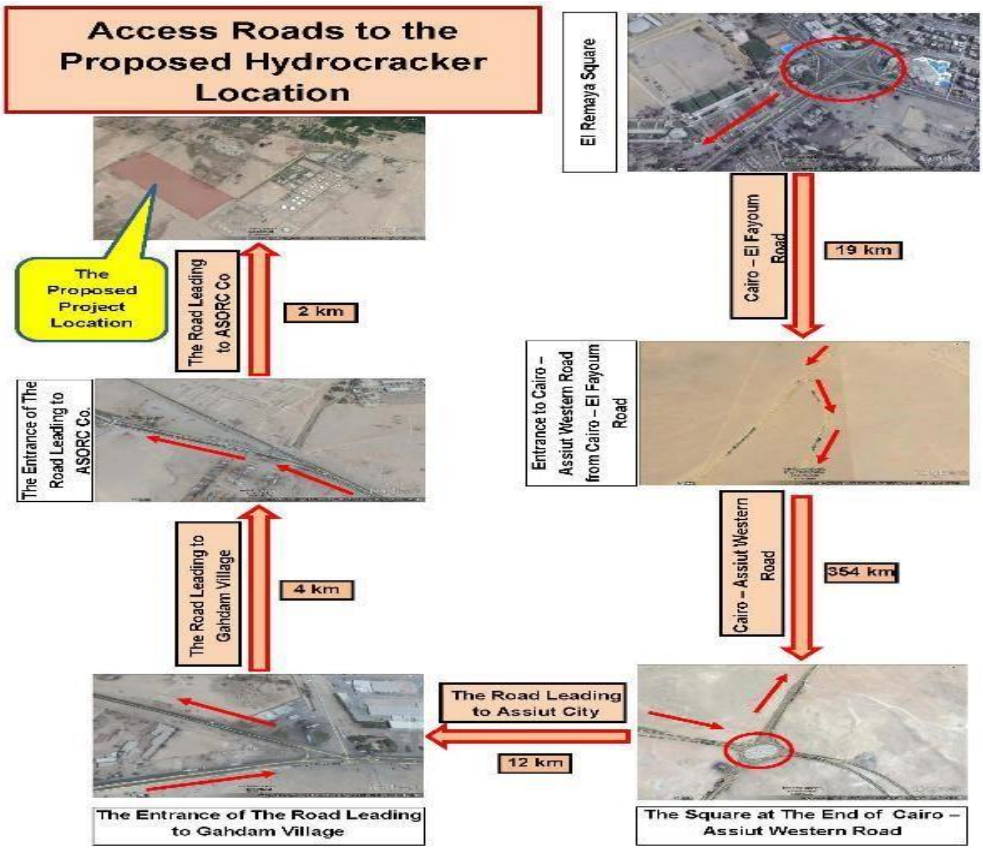

Figure (2) - Access to the proposed AHC Project Location

0.4 POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

Due to the nature and scope of the Project, the assessment will be subject to Egyptian environmental regulations and international regulatory requirements. The project will be under taken with due regard to Egyptian Environmental Affairs Agency (EEAA). Applicable Law No. 4 of 1994 (amended by law No 9 of 2009 & law 105/2015) on Protection of Environment have been reviewed as part of this ESIA in order to ensure that the development is undertaken in a manner that is compliant with these guidelines and standards.

0.5 PROJECT DESCRIPTION

0.5.1 DESIGN

The main objective is to obtain a high conversion of AHC's heavy fractions into high value de-sulphurised distillates, while minimizing the production of coke. The proposed AHC configuration is a high conversion scheme based on hydrocracking and delayed Coking technologies. The new refinery complex's design will satisfy the following criteria:

- Zero fuel oil production.
- Maximize diesel production.
- Zero kerosene.
- Jet production based on market requirements.
- Sulfur extraction.

0.5.2 CONSTRUCTION PHASE

The construction phase of the project is divided into two phases:

1. An Early Works Package and main construction phase. Works include grading and levelling of the hydrocracker complex area, temporary roads, lay down areas, waste collection areas.
2. The basic construction phase includes installation of the facilities and infrastructure for operating units.

The infrastructure works will be constructed with local contractors, where available, undertaking specific social aspects of the work. The construction works will be performed in many areas at the same time to meet the required schedule.

Initial estimate of workforce during construction shows that about 17000000 man/hours. A manpower peak of about 10000 persons Temporary during the construction phase, which extends to 36 months and about 500 to 750 permanent persons during the operating period.

0.5.3 PRE- COMMISSIONING -COMMISSIONING AND STARTUP PHASES

The above-mentioned phases can be summarized as follows:

- Hydro testing of pipelines and tanks;
- Flushing & cleaning of pipelines;
- System dry-out;
- Systematic conformity check of equipment;
- Operational test;

0.5.4 HYDROGEN CRACKING AND MATERIAL BALANCE

The AHC feed will be obtained from Assiut Oil Refining Company, which will be refracted using hydrogen in the proposed hydrogen cracker complex to obtain diesel, LPG, naphtha, coke and sulfur products. Figure 3 shows the materials to be fed, the quantities and the products after the cracking.

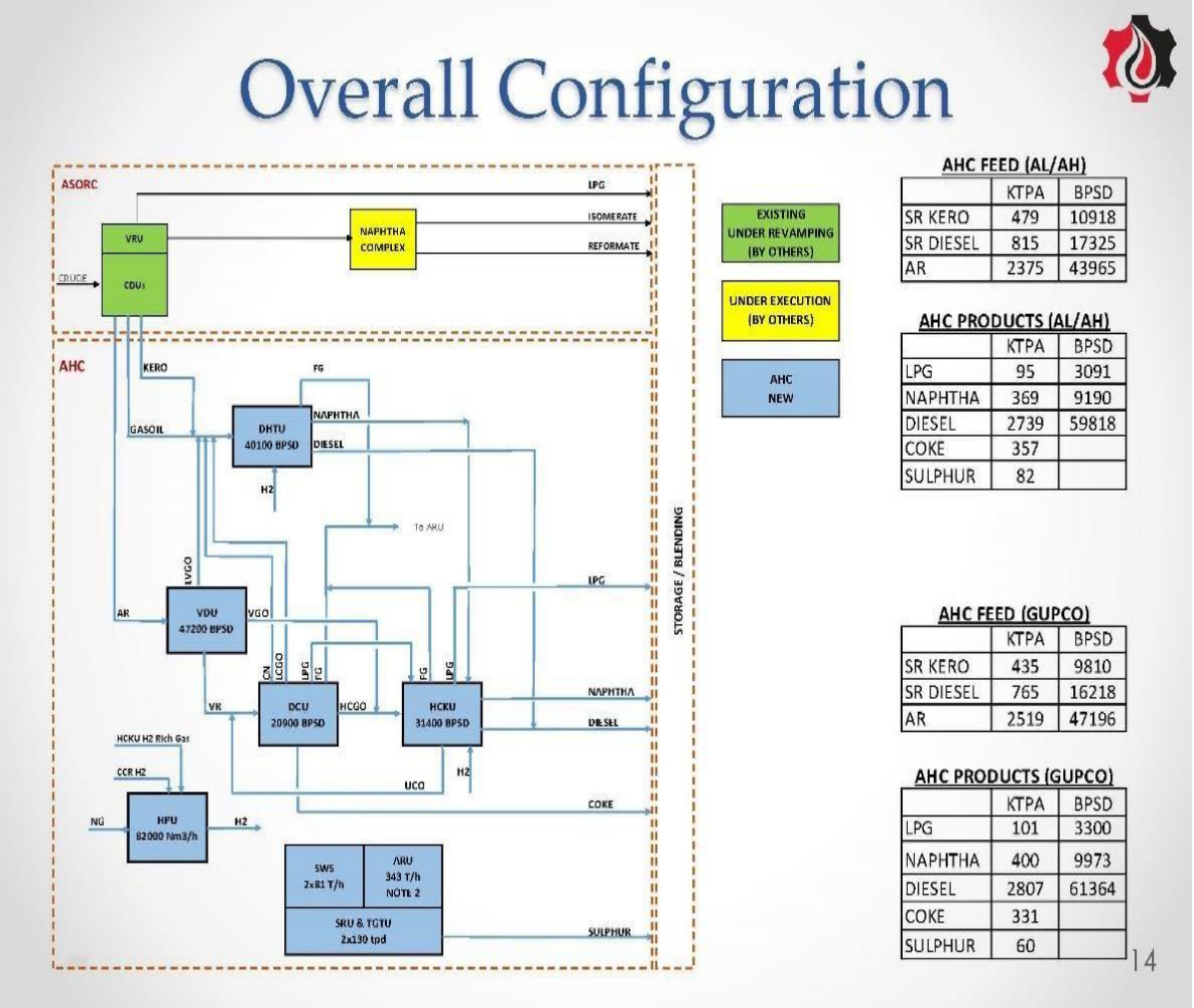

Figure (3) - Shows Refinery Block Flow Diagram

0.5.5 PROJECT'S AREA REQUIRED AND UTILITIES

Table (1) Total Area Required for The Project

Process	470,000 m^2
Utilities	50,000 m^2
Off-sites	150,000 m^2
Non-Operational Building and Warehouse Area	220,000 m^2
Total	**890,000 m^2**

Table (2) Utilities Consumption

Utility	Consumption
Natural Gas & HPU feed Consumption, **(TPA)**	330,000
Electrical Power, **MWh/y**	550,240
River Nile Water, **(TPA)**	2,500,000

0.6 EXISTING ENVIRONMENT

Assiut governorate is one of Egypt's ancient governorates. It belongs to the Middle Upper Egypt region. It stretches for about 120 km along the banks of the Nile. The capital of the governorate is the city of Asyut. Assiut governorate is located on both sides of the Nile River with a length of 160 km, from the Badari in the south to Dirut in the north. The valley width averages 10 km – 20 km between the Eastern desert and the Western desert. Assiut governorate occupies a middle location among the governorates of Egypt. Assiut governorate is bounded from the east by Assiut Eastern Mountain, from the west by Assiut Western Mountain and the New Valley governorate, from the north by Menia Governorate, and from the south by Sohag Governorate (figure 4).

Figure (4) - Assiut Governorate and its surroundings

0.6.1 PROJECT LOCATION

AHC project location lies extremely western of Assiut Nile valley at the threshold between fertile agricultural areas and beginning of western desert. The climate of the proposed project area is typical of the upper Egypt environment in of Egypt, Summer is generally long, hot and dry while winter is short and warm, the prevailing wind directions are N-NW (see figure 5).

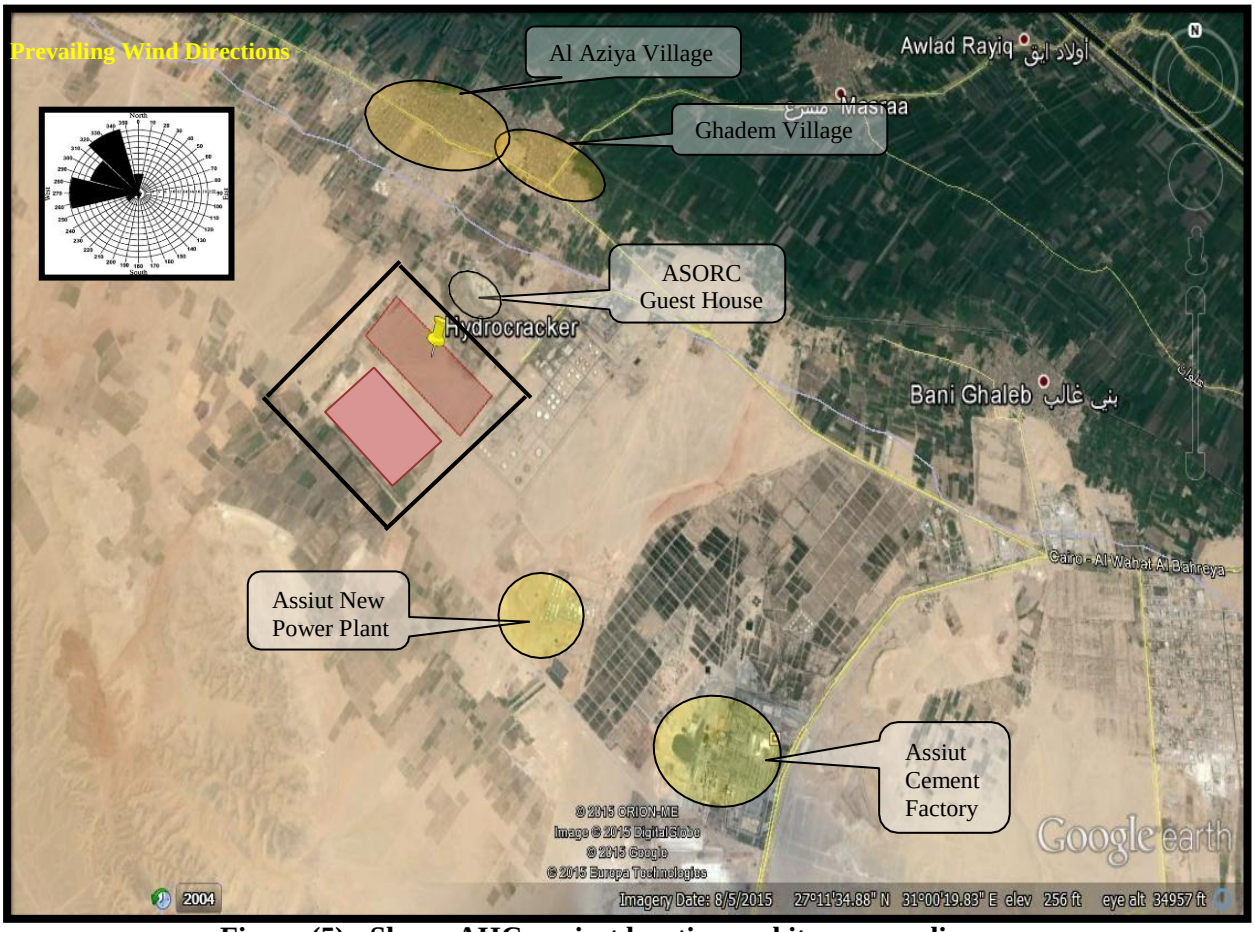

Figure (5) - Shows AHC project location and its surroundings

The nearest community from the project location is "Gahdem" and "Al Aziya" villages, about 2 km upwind northern AHC location. Number of populations at both villages 60,000 approx., the main activity is agriculture which consumes about 40% only of available workforce, so the nearest villages suffering from unemployment problem like most Upper Egypt governorates. The available workforce in these two villages is unskilled with low education level.

0.7 ALTERNATIVES

According to the guidelines for the preparation of ESIA studies for EEAA projects, all project alternatives should be discussed and alternatives to the AHC and associated units' project were identified, including:

- The 'no development' option;
- Site alternatives.

0.7.1 THE 'NO DEVELOPMENT' OPTION

This alternative expresses the environmental gain if not implementing the proposed project compared with the project existence. In order to protect the environment of the site, it may be preferable in some cases not to undertake the project. The AHC project is an important milestone in the economic development of Upper Egypt, representing providing supply for the growing domestic demand of petroleum products. As the demand for refined products is growing

domestically, it is expected that if the project in AHC does not go ahead, the problem of petroleum products shortage in upper Egypt will increase deeply.

0.7.2 ALTERNATIVE SITES

Major downstream petroleum activities developments in Egypt are typically located within dedicated industrial zone, which have each been planned, zoned and developed over specifically for this purpose. The petroleum areas have been designated and developed specifically to accommodate facilities such as the AHC. Therefore, choosing a site close to the site of an oil refining company is better than economic and environmental aspects.

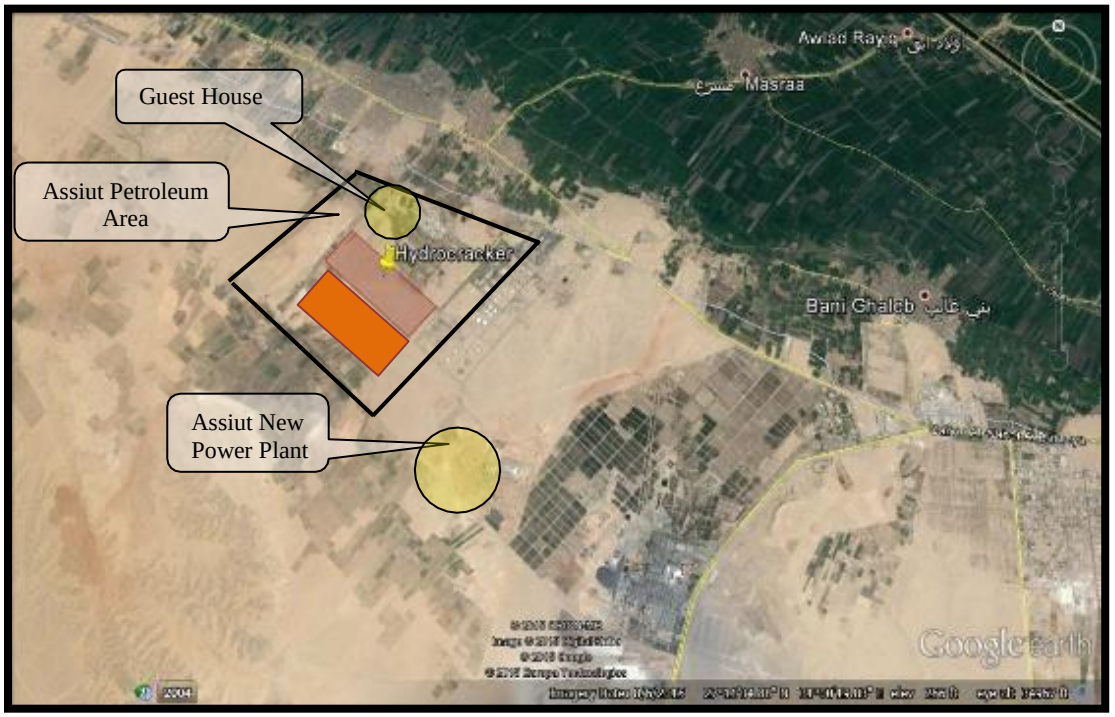

Figure (6) - Shows Assiut Petroleum area and its surroundings

0.8 ENVIRONMENTAL IMPACT ASSESSMENT & MITIGATION MEASURES

0.8.1 AIR EMISSION

The Project will represent the major industrial development within existed Assiut petroleum area. Existing main sources of air pollutants in vicinity of the project site are limited to ASORC refinery, Assiut cement factory and Assiut power plant in additions of non-point sources of air emissions such as traffic or LPG spherical tanks.

The Project will impact upon the air quality and meteorology environment during construction, commissioning and operational.

The IFC requires that emissions do not result in pollutant concentrations that reach or exceed relevant ambient quality guidelines and standards by applying national legislated standards or Air quality guidelines recommended by IFC for pollutants not covered by local legislation. As a result, this analysis relies on Egyptian Environmental standards for determining Project impacts.

The closest sizable population centre is “Gahdem” and “Al Aziya” villages, which is

approximately 2 km to the north of the project site, in additions of ASORC guest housing about 900 m northern AHC proposed location.

The proposed AHC project will be upwind from all above mentioned of major emissions sources and downwind from the nearest emissions sensitive receptors as shown in figure 8 The prevailing wind direction in Assiut as mentioned in section "4" is North West and North West, the nearest air emissions sensitive receptors are up wind of the proposed AHC location.

Dust – Construction

Heavy construction activities are expected to generate dust emissions that may have a substantial temporary impact on local air quality. Dust generation is likely to be particularly significant in a dry environment such as that of project's area.

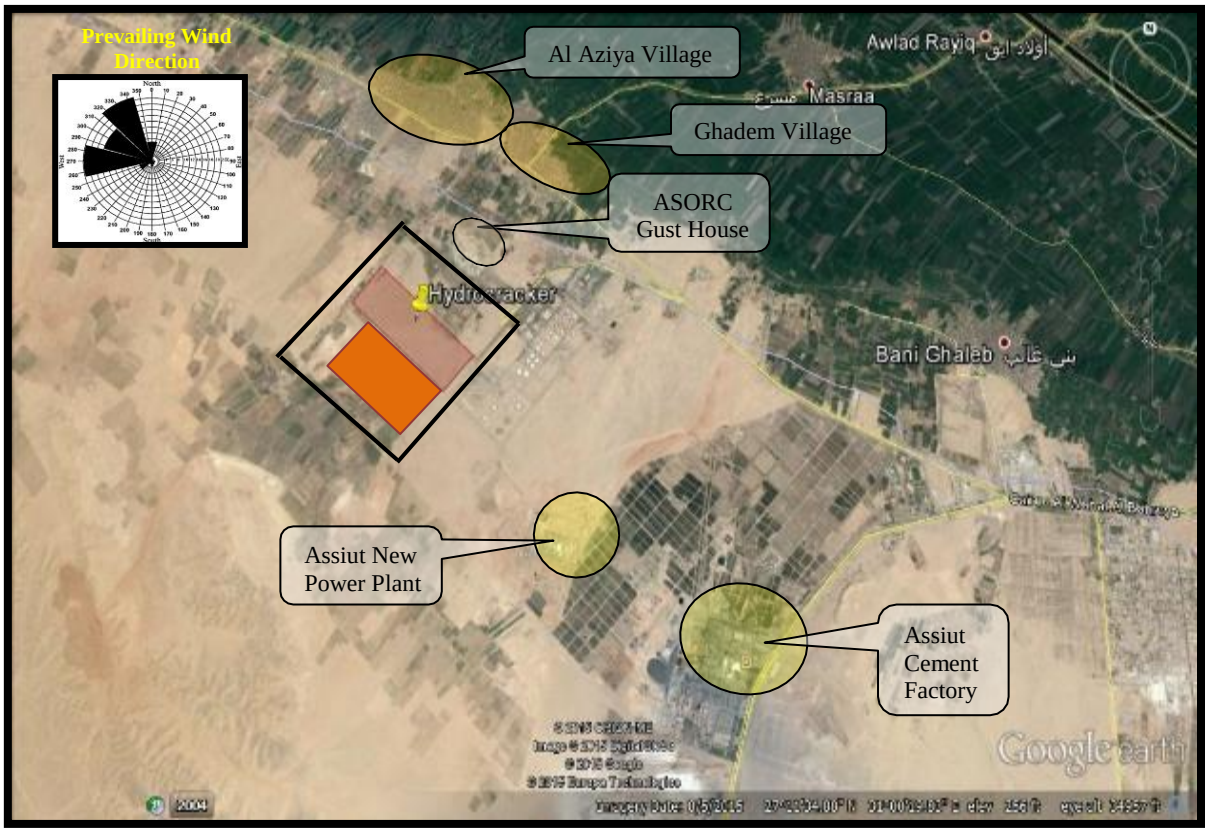

Figure (7) - Hydrocracker project location, main emissions sources, emission sensitive receptors

Mitigations

The Contractor shall prepare and implement an Environmental Management Plan during the construction phase based on the Environmental Management and Control Plan. These plans shall define environmental responsibilities and procedures and respond to emergencies during the construction phase and shall include:

- Cover of all dust generating materials being moved by truck;
- Establish pedestrian routes within the construction area to be used by workers;
- Minimization of the amount of materials stockpiled as far as is practicable, with any required stockpiles aligned parallel to the prevailing wind direction;
- Cover of exposed soils in heavily trafficked areas such as roads or car parks and dust generating stockpiles where feasible with gravel or crushed stone to reduce windblown dust generation;

- A reduced construction site speed limit to prevent the generation of large dust clouds form vehicles;
- Subject to water availability, surface spraying of road surfaces with water and a soil binding agent;
- Damping down of roads;
- Implement a monitoring program to verify compliance with related instructions.

Effects of Exhaust Emissions during the Construction Phase

Vehicles and large construction machinery operating during construction are sources of gaseous exhaust emissions, including NOx, CO, PM10 and hydrocarbons. Although vehicle exhaust emissions will be released close to ground level (i.e. close to the breathing zone of receptors), these emissions will generally be released in open areas where rapid dispersion and dilution will occur. In addition, such emissions will be limited to the duration of the construction phase. Therefore, impacts from exhaust emissions during construction are considered to be of low significance. Based on the above, the air emission impacts associated with the construction phase of the proposed project will be of "low" significance.

Recommendations

Construction Environmental Management Plan (CEMP) will be developed based on the Environmental Management and Monitoring Plan. These plans will mention detail responsibilities and procedures for environmental and emergency response management during construction, including:

- Implementation of a monitoring program to verify construction vehicles comply with regulations.
- Emissions monitoring and reporting to relevant authorities;
- Competencies and training requirements of staff with environmental responsibilities, and lines of communication in the event of an emergency (including accidental releases of hazardous substances);

Operation Phase

Hydrocracking is an energy intensive process requiring many heating stages and steam, and consequently boiler and heater operation represents the most significant contribution to air emission from the AHC during normal operations. In addition, flaring of hydrocarbons and acid gas during start-up, shut-down and emergencies represent an additional source of combustion emissions.

Emissions of concern normally associated with gas fired boilers and heaters and with flares are NOx, CO, SO2 and to a lesser extent, VOCs. Fine particulate matter (PM10) is an additional pollutant of concern. Initial assessment of impacts to air quality from normal operations of the AHC showed to be of low significance due to most of emissions sensitive receptors are upwind the proposed project locations. In additions to impacts from infrequent flaring events (which will only occur during start-up, shutdown and plant upset conditions) rated as being of low significance due to their marginal severity and very unlikely probability/ frequency rating.

0.8.2 NOISE

CONSTRUCTION PHASE

Noise will be generated by equipment associated with the construction activities including clearing, ditch digging, drilling, blasting, equipment handling, vehicle movements, etc. The relevant recommendations of noise control during construction and open sites will be adhered to for the assessment of noise during construction. Recommendations for any mitigation required will also put forward where required such that any residual impacts are reduced to an acceptable level. The following activities are expected to be the most significant noise sources during the construction phase of the proposed project:

- Clearing and grading of the site location.
- Collection and transportation of sand padding.
- Civil works.
- Transport and delivery of equipment/pipes.
- Backfilling and reinstatement.

Noise impacts on sensitive receptors will depend on where they are located relative to the proposed project activities.

Noise impacts from equipment and facilities delivery are unlikely to be a matter of concern. However, if lorry routes are not carefully selected there could be some disturbance to the nearest villages and sensitive receptors. The main routing of these vehicles will be along the public roads and temporary access roads may have to be constructed to allow the vehicles access to AHC location. Based on the above, the noise implications associated with the proposed project construction phase will be of "**low**" importance

Recommendations

It could be recommended to take some mitigation measure to reduce these impacts as follows:

- Choosing vehicles, equipment of a good technical specification and status.
- Good maintenance of these equipment to reduce the resulted noise.
- Effective scheduling of construction activities to avoid the overlap of noise sources.

OPERATION PHASE

The main noise sources during operation phase will be as follows: -

- Compressors,
- Pumps,
- Motors,
- Reduction Gears,
- Fans and Blowers,
- Mixers,
- Heaters,
- Control Valves in gaseous service with critical pressure drops,
- Continuous vents,
- Ejectors,
- Pipes with high-speed fluids

The project site is located adjacent to the north western of the existing ASORC and approximately 900 m southern ASORC guest house, however the closest noise sensitive receptors are “Gahdem” and “Al Aziya” villages (figure….), which is approximately 2 km to the north of the project site.

Assuit petroleum area is industrial area consist of operational oil refinery and oil products distribution processes. Such processes are observed to result in continual noises which propagate to the local areas. This type of noise is expected to be steady without noticeable variations in pitch, frequency or magnitude. Such noise influences are apparent on a 24-hour basis due to the continual operational nature of these facilities.

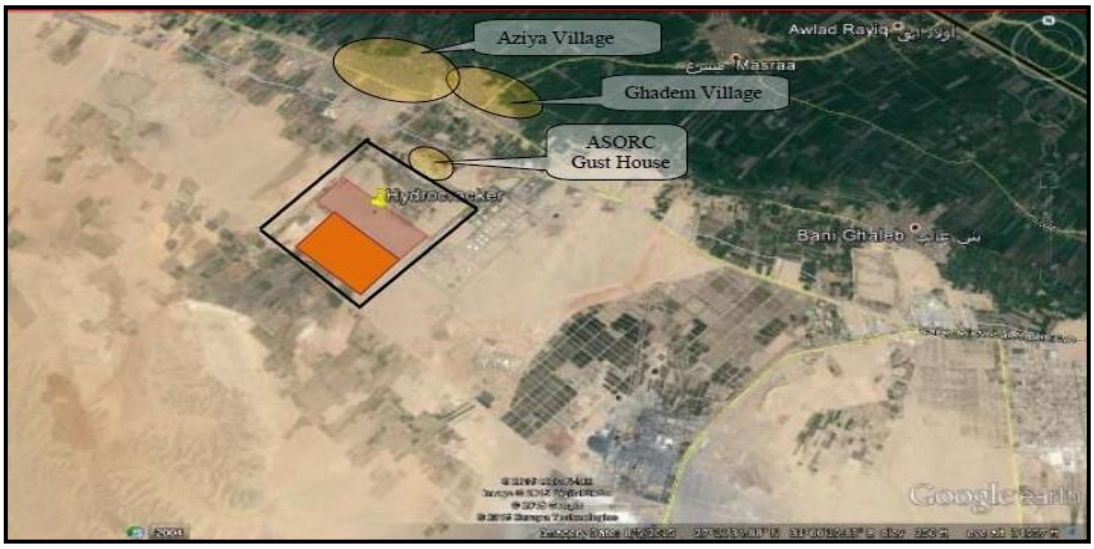

Figure 8 - Shows Hydrocracker project location, and noise sensitive receptors

The Project will be designed and operated in a manner that meets the Egyptian noise and exposure time standards and guidelines, as referenced from the Projects Minimal Functional Specification issued by Technip FMC - Plant Noise Control Specification.

- During operation of the project, the noise calculations predict compliance with WHO residential, institutional and educational noise standards of 55 dB(A) at all modelled residential/institutional receptor locations for daytime monitoring periods with or without the proposed noise barrier during both simple and combined cycle operations. With regards to commercial receptors, the model also predicts compliance with WHO commercial noise standards of 70 dB(A) at all modelled commercial & recreational receptor locations for daytime and night time monitoring periods with or without proposed noise barrier during both simple and combined cycle operations.
- It was concluded from the above environmental noise calculations exercise that under normal
- The noise level from the proposed plant operation will not expected to exceed the environmental noise limits of law. As a result, the noise impact on the nearest noise sensitive receptors will be of "**low**" importance.

Recommendations

- The designer will take care of the problem from the initial project stage. Particular attention will be paid to the positioning of the noisy equipment in the detailed units plot plans. Whenever feasible, effects of superimposition will be avoided.
- Extremely noisy machines will be segregated from the rest of the plants as far possible and consistently with process requirements.
- During project execution, the designer shall verify that proper sizing is applied to usually noisy equipment such as control valves, ejectors, blowers and similar.

- After completion of the noise analysis, the designer shall define the equipment, piping and valves to be insulated for noise reduction.
- Insulating materials and thickness to be installed will be listed and marked on the engineering documents, with details of insulation systems.
- Practical effective noise attenuation methods shall be recommended by the equipment supplier.
- Supplier shall either provide specific noise attenuation devices to be installed on the equipment proper or give recommendations on the criteria to be followed to reduce the noise level.

0.8.3 SOIL AND GROUNDWATER

the location of the proposed project is non-agricultural soil and similar to the soil of the surrounding desert areas. Therefore, it is not rare or of special importance. The report of the soil surveys of the project area showed that the groundwater was not observed in all the wells that were drilled to a depth of 20 meters.

Construction

As a result of the lack of rainfall in the project area, erosion, replacement and renovation of the soil of the project site is likely to occur during the construction work and therefore a significant increase in dust is expected during this phase of the project. Generally, the surface soil of the project site is poor and insignificant, so the environmental impact on the soil is low.

Water requirements during the construction phase will be supplied from the existed Nile river water supply in coordination with ASORC, and no groundwater water abstraction is planned.

Adverse impacts on local soil quality may result unintentionally from leaks and accidental spills resulting from the storage of large quantities of materials used in the proposed project during transport and handling.

Site contamination will be prevented through the use of appropriately designed storage tanks and adoption of strict fueling and spill control procedures, as well as appropriate spill response measures.

The Hydrogen Cracker Complex Project Management will develop and implement an environmental emergency response plan and an operational management and monitoring plan in place to further protect against impacts on local soil and groundwater quality. These plans will include the identification of environmental responsibilities and procedures during construction and should include:

- Raising competencies and training needs of staff in environmental responsibilities, and identifying the communication in case of emergency (including incidental leakage of hazardous substances).
- Actions to be carried out when an accidental leakage of hazardous materials occurs during refueling, including containment details and measures to be applied.
- The availability of pumps and material leakage materials such as absorbent granules to contain and absorb leaking hazardous substances.
- Procedures for the maintenance of all equipment, pipelines and drainage systems.
- The Company should undertake regular reviews of the above-mentioned management to verify its continued effectiveness.

Operation

Potential contamination of soils and ground water is related to leaks and spills during operations. Sources of spillage could potentially occur from:

- Leakages or catastrophic loss of containment from process tanks, vessels and piping;
- Storage and movement of hazardous liquid waste materials.

Adverse effects on local soil quality may result unintentionally from leaks and accidental spills resulting from the storage of large quantities of materials used in the proposed project during transport and handling.

0.8.4 FAUNA AND FLORA (ECOLOGY) IMPACT

Initial environmental site survey findings, the proposed site location dedicated for AHC project lies within the fence of ASORC premises with low to negligible ecological importance as there no vegetation or signs of considerable fauna (see figure 9).

Figure (9) - the proposed AHC location with low to negligible ecological importance

0.8.5 WASTE MANAGEMENT

There will be a significant impact associated with the generation of waste during different stages of the project, during the construction, and commissioning and early stages of operation. These effects will include soil and groundwater due to storage, improper transport of waste and improper practices of subcontractors working on the project. The project includes:

- Non-hazardous solid wastes: construction debris, wood (pallets), empty drums and containers (plastic and metal), packaging (paper, cardboard, plastics), municipal wastes and sanitary waste sledges;
- Hazardous solid waste: batteries; filters; empty oil, chemical or paint containers; fabrics contaminated with oil, spent catalyst, spent activated carbon, spent electrical equipment, industrial wastewater treatment sludge, oily sludge and clinical waste; and
- Hazardous liquid waste: waste oils, lubricants and fuels and drainage water contaminated with these, solvents; paint; thinners; hydraulic fluid; and cleaning chemicals; contaminated hydro-test water.

Proper methods of separating, storing, handling, transporting and disposing of waste will be prepared during the various project phases within the waste management plan and as part of the project's environmental management plan.

The basic method of waste management will be to apply the hierarchy of waste from recycling, reuse, waste recovery or treatment according to the quality of each residue whenever possible and before the final disposal of the waste.

The project's waste management plan will be prepared, implemented and verified in accordance with regulatory requirements and good industrial practices based on the management plan, environmental control and contingency plan. This plan will outline waste management responsibilities and procedures during the operation of the complex, including but not limited to:

- Waste recycling objectives.
- Waste separation procedures, storage, and management and waste recycling.
- The maximum time for storage of waste and the details of waste handling and labelling requirements.
- Selection, monitoring and auditing of waste contractors and off-site waste management sites.
- Requirements for trucks transporting waste.
- Raising the competencies and training needs of workers in waste storage areas in relation to environmental responsibilities and identifying lines of communication in case of emergency (including incidental leakage of hazardous materials).
- Procedures to be implemented when accidental leakage of hazardous materials including containment details and measures to be applied to clean the leakage at the site.
- Procedures for monitoring waste generated and data collection and reporting.

Staff, subcontractors and suppliers will be trained on the on-site waste management system and on the use of emergency leakage materials and equipment (including incidental leakage of hazardous materials).

0.8.6 SOCIO-ECONOMICS

Assessing of the social impacts of AHC project is an essential indicator for measuring the importance of the project. The evaluation process is based on comparing the positive impacts of the project with the negative impacts and overall assessment of the outcome of these projects on the communities near the project. The evaluation of the socio-economic impacts of the project shows that the positive effects will be more than any Negative effects can arise from the project. Construction of the Project is expected to last for approximately 36 months, and is divided into the project site processing works and the installation and testing of the project's units and facilities. Impacts associated with traffic, utility use, and health and safety of the local communities.

During construction of the AHC project and associated facilities and infrastructure, it is expected that the local and national economies will be beneficially impacted, by increasing direct employment opportunities, as well as creating many indirect employment opportunities such as procurement, services and transportation Project subsistence.

During the construction phase, employment is expected to reach 10000 temporary jobs throughout this period and 750 permanent jobs during the operation.

This will require increased demand for rental housing for expatriate workers, subsistence services, transportation, economic opportunities and the overall business at the regional and local levels.

The materials will be provided from the local market whenever possible, which will reflect an economic recovery and a positive impact on the region during the construction phase.

Recommendations

During Construction phase

The contractor will be encouraged to use local workforce during the construction phase and encourage the participation of the local population in the construction phase. The Contractor shall also ensure appropriate employment conditions for expatriate workers.The contractor shall prepare

the infrastructure to be set up for the workers' camps during the construction period in an appropriate manner that will benefit the local population after

During Operation phase

Overall, the development of AHC in Assiut will positively impact all upper Egypt area economically as a result of obtaining important petroleum products, making these products available in the local market and providing foreign currency, in addition to providing many direct and indirect employment opportunities during the operational phase.

The AHC Project is expected to be of benefit to the local population in Assiut and Upper Egypt to get a job opportunity and contribute to reducing the current high unemployment rate in the region, especially among high school graduates. It is also recommended to employ qualified personnel from the local population.

In addition to the direct employment opportunities provided by the project, there are also indirect employment opportunities generated by growing populations and increased spending and demand for goods and services. During the lifetime of the project, many local companies and contractors will have access to contracts to perform various services such as transport, food, supplies, etc. In order to ensure the presence of such services for a long time in the region, this contributes to raising the economic and social level of the region.

0.8.7 TRAFFIC AND TRANSPORT

During Construction phase:

The transport traffic associated with the project is expected to increase significantly, especially during peak construction and installation of facilities. The Project area is served by Western Desert Highway (about 4 km) from the project area will have a major role in the service of the project, which connects Assiut area with Cairo (Capital of Egypt) and Upper Egypt, (see Figure 10). The activities of the AHC project will generate road traffic through the movement of workers, raw materials for construction, construction equipment, supply of production units, pipelines and waste transportation. The impact on the local traffic network associated with this flow is expected to be marginal, given the proposed location of the project outside the population block, which can be accessed through several existing roads.

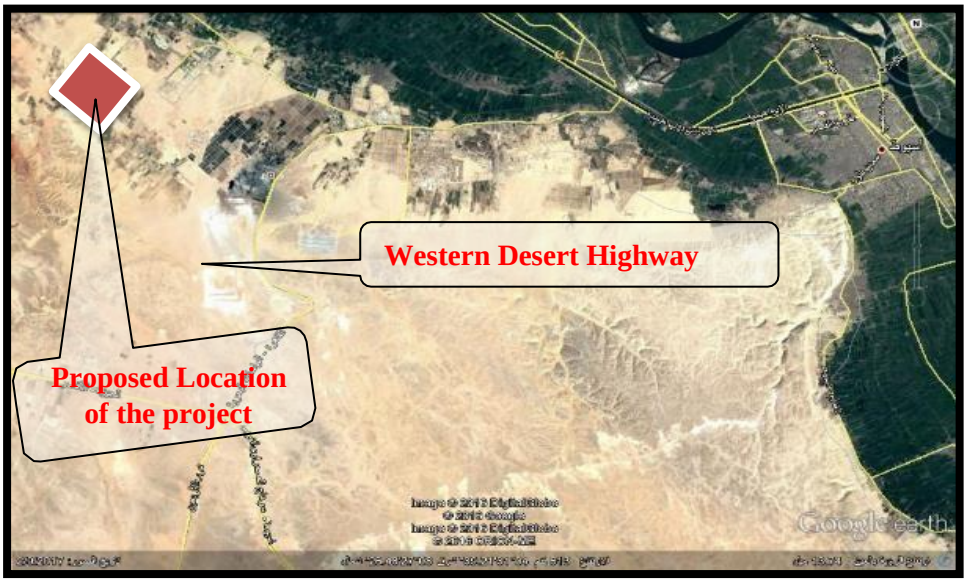

Figure (10) shows the area of the project and the network of surrounding roads

During Operation phase:

The AHC will receive its feed and deliver its liquid products by pipelines. The result is that the number of vehicles accessing the site during the operational phase will be limited to those associated with:

- Workers accessing the site;
- Waste collection;
- Deliveries of consumables.
- Coke & Sulphur.

ANOPC will develop, implement and maintain a Traffic Management Plan appropriate for operational phase. This should include, but not be limited to:

- Access routes for operational vehicles and workforce transportation between AHC accommodation and work areas;
- Training and awareness for project drivers to safe driving and good driving behaviours.

0.8.8 UTILITIES & INFRASTRUCTURE

Power

National Electrical service is available to supply the proposed project during the construction and operation phase.

Telecommunication

Underground cables of telephone service providers are in place additionally, mobile telephone coverage is available.

0.8.9 ARCHAEOLOGY AND CULTURAL HERITAGE

It is known that Upper Egypt has many archaeological sites of historical and religious importance, but the project area is not classified within the archaeological or historical importance.

0.9 ENVIRONMENTAL / SOCIAL MANAGEMENT SYSTEM AND PLAN

Framework for an Environmental and Social Management System (ESMS) that will be used to support the detailed design, construction, commissioning, operations and decommissioning of the

AHC Project. This Framework ESMP will be developed further to include more details, where necessary and when available, including:

- Mitigation measures to protect the natural, social and economic environment
- Details of auditing performance against legal, ESIA and Framework ESMP requirements;
- Responsibilities for ensuring implementation of each commitment.

The ESMP will be a dynamic document, which can be updated and modified as necessary so it remains practicable and applicable throughout the project. This plan will ensure that the project management complies with the standards for the protection of the natural and social environment.

The general environmental principles for AHC project are:

- Use the best available and environmentally friendly technology.
- Minimization of power requirement.
- Minimization of waste generation.
- Minimization of air emissions.
- Use the flare in case of emergency only.
- No utilization of ozone depleting substances (halons, PCBs, CFCs, HCFCs).
- No utilization of asbestos.
- Water recycling using (ZLD).
- Elimination of hazardous chemicals (or substitution).

Technip FMC / AHC project HSE Goals:

- ZERO Incidents/Accidents.
- ZERO Occupational Illnesses.
- ZERO Releases or spills to the Environment.
- ZERO adverse impact to the Community.

0.10 STAKEHOLDER ENGAGEMENT PLAN

The Stakeholder Engagement Plan will outline the approach that will be taken in supporting the communications and engagement objectives, processes and deliverables required to support successful delivery of the AHC Project.

The communication and engagement objectives of this Stakeholder Engagement Plan are to:

- Ensure that the community is informed about the project and the extent of its impact on them positively or negatively.
- Provide a mechanism for the surrounding community to express an opinion on the proposed project plan to maximize the positive impacts and to prevent or mitigate negative impacts.

In 2021, during the preparation of SEP, community needs assessment and SIA a project information document including a summary of the ESIA was developed in Arabic and shared with 82 females and 44 males (governmental group, NGOs, community people, vulnerable groups- women - people with disability and young people), A detailed minutes of meeting was prepared in Arabic and a summary was prepared in English.

0.11 Public Consultation Meeting

The Public consultation meeting was held on Thursday 06/04/2017, to ensure that the mentioned study had covered the social, economic and environmental aspects of the proposed project. This meeting has helped to confirm that the benefits of the project were the largest possible and the

negative effects were little as possible, and the public consultation meeting was held as per EEAA requirements. The Stakeholders have been invited through invitations (Figure 1) and a general invitation was made for local and representatives of civil society within advertising in one of the official journals for attending the public consultation meeting of the mentioned project.

The mentioned public consultation meeting was held in ASORC club with attendance of 291 individuals from 10:00 am till 1:30 pm.