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SIMULATION [Case Supplement]: For using the simulation for the case decision, you may please write to contact@johnslab.online

DRAFT

GAIL (INDIA) LIMITED: GOING GREEN?

Joshin John and Lincy P Thomas wrote this case solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The author may have disguised certain names and other identifying information to protect confidentiality.

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On a sunny afternoon in November 2017, Mr. Vipin Chandran, Deputy General Manager (Operations & Maintenance) of GAIL (India) Limited was going through the proposal for installing solar photovoltaic rooftop panels at the company's Kochi facility. As the largest gas processing and distribution company in India, GAIL was aggressively pushing its green agenda to promote the use of eco-friendly and clean energy by consumers. But now, it was the company's turn to decide on the *green* act. GAIL's Kochi facility was powered by electricity supplied by the Kerala State Electricity Board (KSEB) that was sourced primarily from conventional hydel and thermal power plants¹. And the Kochi unit of GAIL was considering the proposal to install-solar rooftops as part of its strategy to go green. Mr. Chandran had to evaluate the proposal, and make recommendations to the management on this topic that was tabled for the next meeting. Specifically, he had to weigh on the proposal not only from an economic standpoint, but on its contribution to the company's Triple Bottom Line (TBL).

BACKGROUND

Incorporated in 1984, GAIL (formerly known as Gas Authority of India Limited) was India's largest state-owned natural gas processing and distribution company. It was conferred Maharatna² status in 2013 by the Government of India. The company had several subsidiaries and joint ventures with other hydrocarbon based companies for its petrochemicals and gas distribution business. GAIL was the pioneer in introducing city gas projects in India for supplying gas through its subsidiaries. The customers of GAIL included domestic or residential users as well as small and large industries and commercial businesses.

The operations of GAIL encompassed the entire gas value chain including gas exploration, processing and distribution to the end user. The company had presence in multiple segments such as exploration and production in upstream fields, pipe laying for natural gas transportation, production of petrochemicals,

¹ Kerala State Council for Science, Technology and Environment, "Energy", database, accessed on March 4, 2021, http://www.kerenvis.nic.in/Database/ENERGY_811.aspx

² Maharatna meaning 'great gemstone' was a status conferred to Public Sector Units (PSU) by the Government of India. For a PSU to be eligible for Maharatna status, the company must be a publically listed company with an average annual net profit of ₹ 50 billion, or an average annual net turnover of ₹ 250 billion, or an average annual net worth of ₹ 150 billion. As of November 2017, there were eight Maharatna companies in India. 1 US \$ = ₹ 65 Indian Rupee (Nov. 2017)

processing of liquid hydrocarbons, installation and production of power from renewables, and city gas distribution³.

The company owned and operated six gas processing plants in India that produced Liquefied Petroleum Gas (LPG), propane, pentane, naphtha and other by-products. The plants were majorly located in the center belt states of India – Gujarat, Madhya Pradesh and Uttar Pradesh. The gas processing units were having the LPG transport capacity of 3.8 MMTPA⁴. The highest demand of natural gas was from power and fertilizers companies. As on 2017, GAIL distributed thirty-four percent of natural gas supplies to fertilizer industries, twenty-nine percent to power sector, sixteen percent to Compressed Natural Gas (CNG) and Piped Natural Gas (PNG) industries, and the remaining twenty-one percent to other businesses.

Under its natural gas vertical, GAIL had a pipeline network spanning 11000 kilometers across the country, which was set to more than double during the expansionary phases in the coming years. The city gas distribution unit of the company served the fuel and energy needs of over 1.9 million transport vehicles and an additional 1.9 million households, either through direct subsidiary companies or joint ventures. The power and renewables unit of GAIL functioned along two sub-verticals – the wind power unit had a production capacity of 118MW⁵ while the solar division had a capacity of 5MW. The petrochemicals unit had an annual production of 0.81 MMTPA that accounted for domestic market share of fifteen percent in the year 2017.

As on March 2017, GAIL's total assets was of the order of ₹562,699 million⁶. The major revenue source for GAIL was from gas marketing that accounted for seventy-one percent of its total revenue. This was followed by petrochemicals and liquid hydrocarbons sales that contributed nineteen percent of revenue. Ten percent revenue was generated from natural gas and liquified petroleum gas transmission sales. Purchase of raw material was the major cost head for the company consuming seventy-three percent of the total revenue. The consolidated profit margin for GAIL was about seven percent.

GAIL'S KOCHI FACILITY AND ESG INITIATIVES

In 2015, GAIL opened a regional center for monitoring its gas pipeline project in the state of Kerala. It was situated in Kinfra Hi-Tech Park, Kochi - an industrial park owned by the Government of Kerala. The center was envisaged primarily to function as the regional hub for gas distribution. To this end, the company constructed buildings and facilities in its premises at Kalamassery in the city of Kochi, Kerala. This facility was one among the only two facilities GAIL operated from its own premises in South India, the other facility being located in Rajamundry in the state of Andhra Pradesh. The regional gas management center of GAIL was integrated with the national gas management center, principally for controlling the Liquefied Natural Gas (LNG) pipelines. The regional center also functioned as valve station to regulate and control the pipeline network during emergency situations (see Exhibit 1).

The leadership at GAIL regional gas management center, over the years, took several initiatives in line with the company's sustainability agenda. First, the main office building (see Exhibit 2) at GAIL Kochi was designed and constructed as a green building as per GRIHA⁷ norms. The building was planned considering

³ GAIL (India) Ltd, "Annual Report 2017", accessed on October 10, 2020, https://gailonline.com/pdf/InvestorsZone/AnnualReports/Annual_Report_2017_18.pdf

⁴ Million metric tons per annum

⁵ Mega-watt

⁶ The Reserve Bank of India's Reference Rate for the US Dollar is ₹ 64.8386 on March 31, 2017. accessed on July 15, 2021 from https://rbi.org.in/scripts/BS_PressReleaseDisplay.aspx?prid=40015.

⁷ Green Rating for Integrated Habitat Assessment

the tropical climatic conditions in the city of Kochi. To take maximum advantage of sunlight round-the-year for natural lighting, the building was largely glass paneled. This design helped in reducing energy consumption for interior lighting. In order to reduce the heating and ventilation power loads, the building architects came up with an innovative design. The external glass walls were tapered outwards (see Exhibit 2) in order to partially reflect the harsh tropical sunrays directly falling on the glazed glass-wall paneling. Additionally, a double skinned structural glazing supported using aluminum composite panels were used to reduce the heat penetration from radiation into the building. This also decreased the burden of energy consumption by the air conditioning system during summers.

A second focus area for GAIL was to conserve water, and prevent water run-off during monsoon. The company had initiated many project proposals for the conservation of water including maintaining natural water bodies and creating new water reservoirs at different stations in India. At the Kochi facility premises, GAIL developed a pond that was christened as ‘KINFRA⁸ pond’ (see Exhibit 3). This water body was developed for two purposes: One, to recharge the ground water from monsoon rains; and two, to act as a water supply source for the fire hydrant systems at the facility during emergencies.

Additionally, at the GAIL facility, a sewerage treatment plant was setup to treat sewage water. The sewage water that was treated was subsequently used for horticultural purposes – to grow a vegetable and fruit garden in the premises. The company also installed a fixed dome type biogas plant at its Kochi facility for converting kitchen waste into biogas. This way, the fuel needs for the office kitchen was met in self-sustainable manner without external fuel requirements.

GAIL’s vision was to “be the leading company in natural gas and beyond, with global focus, committed to customer care, value creation for all stakeholders and environment responsibility”. This was the guiding force, and its trickledown effects were observable in the company’s environmental and social interventions, and governance policies. With respect to its day-today business operations, GAIL kept the level of pollutants much below the national stipulated norms consistently. As GAIL was using natural gas for its feedstock as well as fuel requirements, the company also ensured to maintain the air quality level in the area within the stipulated parameters. For the emissions from its stack, GAIL provided adequate stack height for effective dispersion of pollutants and also installed gas detectors to ensure quick detection of any gas leak. A solid waste management system was developed by the company to effectively manage waste by segregation, treatment and disposal based on hazardous and non-hazardous waste management practices. Over the years, GAIL had reinvented itself to become greener in several areas of its operations at its Kochi facility, and to align with the tenets of sustainability. The company regularly monitored environmental parameters to assess the environment quality through an in-house team as well as an independent third-party agency. Internal and external laboratories also analyzed the water and waste water sample on regular basis, to keep water quality under check. The company also adopted an auditing system to ensure the proper functioning of the plants and pipeline in compliance with sound environmental management practices.

As on 2017, GAIL achieved an aggregate ESG Score⁹ of 63. The company’s ESG performance in environmental, social and governance categories were 79, 76 and 21 respectively (see Exhibit 4, refer case supplement or Refinitiv database for more details on the ESG metrics). On the social dimension, GAIL Kochi center had in place a program for health and safety training to the employees and employee welfare programs. The incidents of accident and injury rate also showed a decreasing trend over the years (Source: Refinitiv). For process quality management, GAIL Kochi center had introduced and instituted six sigma

⁸ KINFRA stands for Kerala Industrial Infrastructure Development Corporation, a special economic industrial park zone where GAIL Kochi facility was located.

⁹ Source: Refinitiv EIKON – Thomson Reuters Database, accessed on December 22, 2021.

and quality management systems in its business operations. The company also supported the local community through its CSR initiatives, particularly in areas such as education and skill development.

While the company was in the energy business, it was yet to achieve energy neutrality, i.e. to produce all the energy that was consumed, at its Kochi unit. While this was one sticky point, new regulatory requirements were expected to be put in place in the near future by Securities and Exchange Board of India (SEBI) requiring all top 1000 listed companies to report their ESG initiatives. This had implications on many large-cap¹⁰ companies to improve their TBL in accordance with standard Business Responsibility and Sustainability Reporting (BRSR) or equivalent frameworks. At GAIL Kochi, a proposal was brewing at the leadership level to discuss an investment proposal to achieve energy neutrality at the company's regional facility. The discussion was tabled at a high-level meeting in November 2017.

THE SOLAR ROOFTOP INVESTMENT PROPOSAL

In November 2017, during a high-level meeting at GAIL Kochi Office, Mr. Tony Mathew, General Manager of GAIL took up the point on the agenda, to adopt cost effective green initiatives. Mr. Vipin Chandran, Deputy General Manager (Operations & Maintenance) proposed installing solar photovoltaic rooftop panels on its building. He opined, "It might be to our benefit using solar energy to run the center. The electricity cost could be minimized drastically." Mr. Tony Mathew suggested to conduct an in-depth and comprehensive analysis on the pros and cons of installing solar photovoltaic rooftop panels, considering existing electricity consumption and the associated costs at GAIL's Kochi facility.

In his proposal, Mr. Chandran recommended to install a solar power plant with a capacity of 50KW on the roof top of GAIL's Regional Gas Management Centre at Kochi. The capacity was limited to 50KW by the area available at the regional center. In consideration of the future capacity expansion plans for the building, only half of the available roof top area could be used for installing the solar photovoltaics, and the remaining area was reserved for future expansion. For installing the solar power plant, the initial cost of investment was estimated to be ₹ 3.5 million¹¹. This included cost of solar panels, support structure, cabling and wiring, energy monitoring and metering systems. The average daily production of electricity from the proposed solar plant at the facility was estimated to be 200KWH per month. Currently, GAIL paid the state government's KSEB for its energy consumption, at a subsidized average energy tariff of ₹ 5.4 per KWH in the financial year 2016-2017. This subsidy was available only to industrial units housed within Kinfra Hi-Tech Park. For calculating GAIL's energy requirements post the proposed solar installation, Mr. Chandran had based his numbers on last year's energy consumption report (see Exhibit 5). The life of the solar panels was expected to be twenty-five years.

Mr. Tony Mathew was aware that GAIL was enjoying concession in energy tariff, from its locational advantage in the industrial park. So, he was also skeptical on the cost-benefit of installing solar panels given the prevailing subsidized energy tariff. However, economic benefit was only one consideration. It was also noted that although there were seasonal variations in energy consumption, the average energy consumption was about 662 KWH per month. The inflation rate in India for 2017 was 3.6%¹², and risk-free rate of return on investment was 6.5%¹³ on an average for the last ten years.

¹⁰ Companies with a market capitalization of ₹562,699 or more

¹¹ The Reserve Bank of India's Reference Rate for the US Dollar was ₹ 64.9 as on March 31, 2017. accessed on July 15, 2021 from https://rbi.org.in/scripts/BS_PressReleaseDisplay.aspx?prid=40015.

¹² Accessed on 27th July, 2021 <https://m.rbi.org.in/Scripts/AnnualReportPublications.aspx?Id=1302#>

¹³ Accessed on 27th July, 2021 from <https://www.macrotrends.net/countries/IND/india/inflation-rate>

DECISION POINT

Mr. Chandran was tasked to evaluate the solar investment proposal. He had to weigh the pros and cons of the solar rooftop investment that was discussed, not only from an economic standpoint, but also from a holistic perspective, anchoring on the pillars of sustainability. Should GAIL install the solar rooftop energy system at Kochi?

EXHIBIT 1: GAIL'S PAN-INDIA PRESENCE



Source: Company Documents

EXHIBIT 2: GAIL KOCHI BUILDING



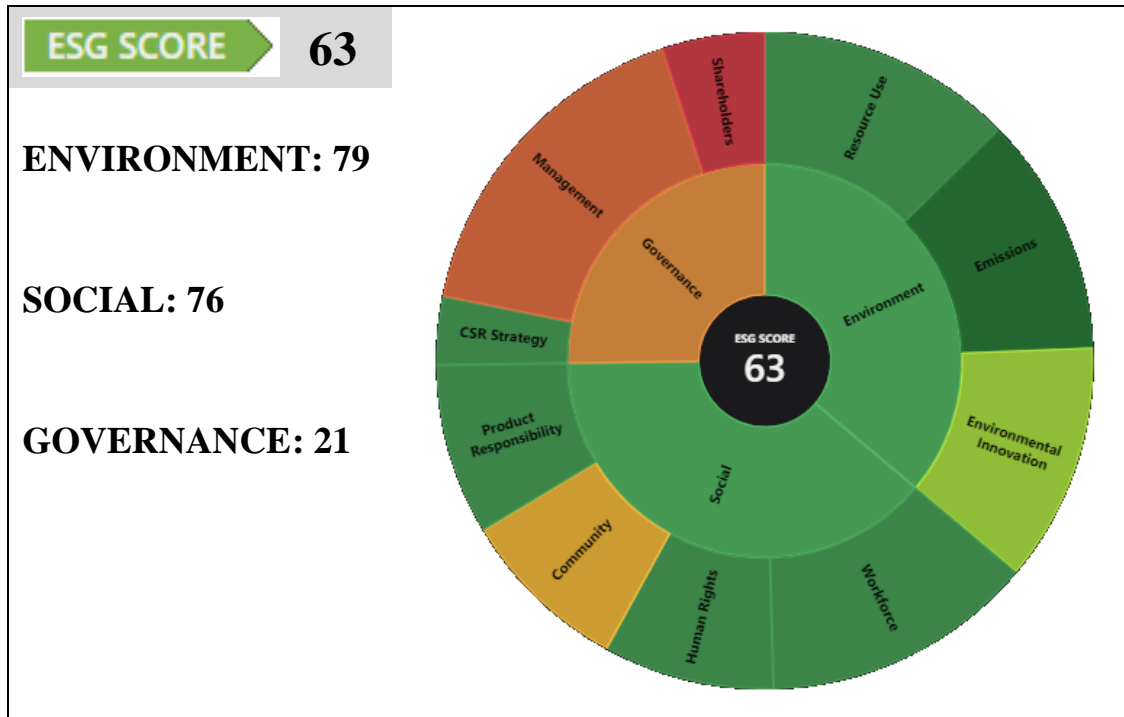
Source: Company Documents

EXHIBIT 3: KINFRA POND FOR WATER CONSERVATION



Source: Company Documents

EXHIBIT 4: ESG SCORE OF GAIL



Source: Adapted from Refinitiv database

EXHIBIT 5: GAIL KOCHI: ENERGY CONSUMPTION DATA

Month (Time Period)	Total Energy Consumption (kWh)	Daily Average Energy Consumption (kWh)
Apr-16	23439	781
May-16	21495	693
Jun-16	18783	626
Jul-16	19981	645
Aug-16	21865	705
Sep-16	16925	564
Oct-16	20415	659
Nov-16	19911	664
Dec-16	19647	634
Jan-17	19790	638
Feb-17	19759	706
Mar-17	19408	626

Source: Company Documents