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GAIL (India) Limited: Transforming safety culture

Ranjeet Nambudiri and Swati Ghulyani 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 authors may have disguised certain names and other identifying information to protect confidentiality.

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People don’t resist change; they resist being changed.

Peter M. Senge[[1]](#footnote-1)

In mid-2016, S. P. Garg, general manager of health, safety, and environment (HSE) at GAIL (India) Limited (GAIL), reflected on his recent meeting with M. Ravindran, head of human resources and business development. Garg knew that sustaining the much-talked-about behaviour-based safety (BBS) program at GAIL would be a challenge. The program was introduced in November 2013 to overhaul the safety culture at GAIL, inculcating a safety mindset across all employee levels and plant sites. Seven months after the program was launched, a pipeline burst at one of the company’s plant sites. Although the accident unnerved the company’s top management, this initial setback led to the implementation of the BBS program. But two years later, a bigger challenge awaited Garg and his team. BBS was still viewed with skepticism and apprehension, and whether to continue the program became the main topic of discussion for all Garg’s meetings with Ravindran.

Management had instructed the HSE team to undertake every possible and necessary step to ensure complete employee safety across all of the company’s plants and work sites. Garg’s team worked unceasingly to create a robust safety culture in the company, using communication and rigorous training programs to spread awareness about BBS. The team further ensured that each employee and contract worker understood the importance of BBS in the overall organizational strategy of the company. Employees knew that BBS demanded changes in their habits, lifestyle, and approach toward work.

The lead trainers, who had been the main drivers of BBS, were losing interest and lacked motivation. Employees began to see BBS as a fad that could not be sustained, and varying levels of interest across the hierarchy along with subtle resistance to behavioural change toward safety were fast becoming critical bottlenecks in sustaining BBS. Amid the setbacks and speculations about driving an organization-wide change program, Garg recalled the remarks of a senior officer during the introductory meetings related to BBS: “Ensuring 100 per cent employee safety through a behaviour change program is a stretched target, Mr. Garg, which, to the best of my knowledge, has never been achieved by the oil and gas industry.”

Garg was now worried because the next set of objectives would be more difficult to attain. It was not easy to bring about actual change in employee behaviour over the long run. He wondered how he and his team could overcome the challenges of sustaining BBS amid growing complacency and disinterest in the program.

GAIL (India) Limited

GAIL was India’s youngest Maharatna, a public-sector enterprise with the highest of three levels of financial autonomy.[[2]](#footnote-2) Previously known as the Gas Authority of India Limited, GAIL was incorporated in 1984 under the Ministry of Petroleum and Natural Gas with the mission “to accelerate and optimize the effective and economic use of natural gas and its fractions for the benefit of the national economy.” Top management set the company’s vision to become the “leading company in natural gas and beyond,” committed to creating value for stakeholders with environmentally sustainable actions.[[3]](#footnote-3) The organization focused on creating infrastructure for the sustainable development of the natural gas sector in India.

In the 1980s, the Indian government announced the search for energy alternatives to coal and liquid fuels such as oil. GAIL took this opportunity and was one of the first companies to focus on using cleaner fuels such as natural gas to provide sustainable solutions to meet the growing energy needs of a developing nation. Soon after its incorporation, GAIL was commissioned to construct, operate, and maintain one of the largest cross-country natural gas pipeline projects of that time—the Hazira-Vijaipur-Jagdishpur (HVJ) pipeline project. The company further diversified its business into natural gas processing, upstream exploration and production, petrochemical production and distribution, and hydrocarbon discoveries.

By 2016, GAIL was established as the country’s largest state-owned natural gas processing and distribution company. It soon became one of the few companies in India to operate at all three levels of the value chain in the oil and gas industry (see Exhibit 1).GAIL had begun its journey as a gas transmission company, and within three decades of its inception, it had diversified its product portfolio into various business verticals (see Exhibit 2). The company had established its offices in various Indian cities (see Exhibit 3) and across the world in countries such as the United States, Singapore, Myanmar, China, and Egypt. The company’s after-tax profit for fiscal year 2016/17 was ₹35.03 billion.[[4]](#footnote-4)

Promoting Safety as a Core Value at GAIL

GAIL’s vision statement affirmed the company’s commitment to the highest level of operating standards: “To be the undisputed leader in the natural gas market in India and a significant player in the global natural gas industry, by growing aggressively *while maintaining the highest level of operating standards*” [emphasis added].[[5]](#footnote-5) Concerns regarding HSE were also embedded in the core organizational values; the HSE practices were established from the top by the corporate health, safety, and environment policy chairman and managing director, B. C. Tripathi. The safety measures, driven by the policy, were implemented at all company sites by an elaborate and comprehensive HSE management system.

GAIL’s HSE performance was appreciated at both national and international levels. Several of the company’s sites had won international safety awards from noted agencies such as the British Safety Council, the National Safety Council, the Oil Industry Safety Directorate, and the Institution of Engineers. GAIL and the National Safety Council entered into an agreement to promote and enhance a mutual understanding of HSE through the exchange of experiences and collaborative learning. GAIL’s HSE manager also served on the National Safety Council’s board of governors.

Behaviour-Based Safety (BBS)

Industrial settings were considered to be vulnerable to accidents and injuries due to their extreme working conditions. According to official figures, 10,441 injuries were reported in the registered factories and industrial sites across India in 2011.[[6]](#footnote-6) Of these, approximately 10 per cent were reported as having been fatal. The United States reported 3 million non-fatal workplace injuries and illness, and the United Kingdom reported 115,379 non-fatal workplace injuries in 2011.[[7]](#footnote-7) These data possibly reflected the low incident reporting rate in India when compared with other countries. In India, the percentage of incidents reported per 1,000 workers employed dropped from 22 per cent in 2000 to 14 per cent in 2013.[[8]](#footnote-8)

Research suggested that 99 per cent of workplace accidents were due to the unsafe behaviours of individuals. Almost half of these unsafe behaviours were visible, and the accidents could have been prevented had the behaviours been identified and rectified on time. Based on the National Census of Fatal Occupational Injuries in 2016, the Bureau of Labour Statistics listed factors that created obstacles in correcting unsafe behaviours, identifying factors such as the leadership styles and attitudes of the top management toward tasks and relationships, lack of safety awareness, arrogance, inability to take corrective measures, and lack of accountability.[[9]](#footnote-9)

Behaviour-based safety was developed as a program in the 1970s, but its roots were established in the 1930s in the United States with the objective of preventing accidents and injuries in the workplace.[[10]](#footnote-10) Since then, the program (or intervention) was voluntarily undertaken by organizations to ensure safe behaviour in workplaces. Indian organizations began adopting BBS in the 1980s. In 2007, BBS was recognized as an Occupational Health and Safety Assessment Series (OHSAS) 18001:2007compliance standard.[[11]](#footnote-11)

Companies opted for BBS to ensure that their workplaces did not compromise the health and safety of their employees and workers. The program focused on the immediate availability of information and demanded that employees report near misses (i.e., narrowly avoided accidents) that occurred on a work site. The program advocated the principle of “observe and correct unsafe behaviour on the spot” and emphasized that each employee take ownership of their safety and the safety of other employees by reporting unsafe behaviours in the workplace.

BBS demanded a change in employee mindset, behaviour, and working style. The BBS philosophy suggested that instead of punishing an employee who practised unsafe behaviour, employees should be repeatedly sensitized to safe behaviour practices and called to correct their unsafe behaviours. Moreover, safe behaviour should be encouraged, recognized, and rewarded. The principle was to increase safe behaviours through positive reinforcement, thereby reducing injuries, illnesses, and related financial costs.

The program used a data-driven decision-making process that made it mandatory to measure, report, and prominently display safe practices. The underlying belief was that “what gets measured gets done”and that each employee had a role in organizational safety. BBS also involved observation and feedback, and a system of collecting, analyzing, and disseminating data. The employees were instructed to report their observations regarding unsafe and safe behaviours on a BBS checklist (see Exhibits 4 and 5).

Proponents of the BBS philosophy suggested that the program adopt a bottom-up approach, unlike other organizational change programs that were driven from the top down. It was widely noted that the program’s success had been compromised in the past by several implementation issues such as resistance from the workforce, poorly defined unsafe behaviours, and poor documentation of accident records and near-miss injuries.[[12]](#footnote-12)

Behaviour-Based Safety at GAIL (India) Limited

GAIL operated in a business environment fraught with risk and associated with hazardous chemicals and accident-prone work situations. In 2016, GAIL employed more than 4,000 employees and staff members and more than 7,000 contract workers. As a socially responsible organization, it became essential for the company to ensure safe working conditions across all its plants and sites. The company had always complied with safety conditions required by the statutory framework in India, and the HSE team continuously explored best safety practices that aligned with the company’s context. Management felt the need to also go beyond the minimum legal compliance. They averred that management of the health and safety of employees and the local population around its work sites was a concern for the organization.

An unfortunate event in June 2014 acted as a catalyst for accelerating GAIL’s implementation of the BBS program and thereby ensuring safe work environments at GAIL’s sites: a pipeline burst near the Krishna Godavari basin at Nagaram village in southeast India, resulting in 22 deaths and several people being injured. The Government of India and GAIL conducted an inquiry that resulted in the suspension of the two senior officials in charge of the operations, monetary compensation for the affected families and village members, and the appointment of the executive director of human resources as the nodal officer for undertaking relief and rehabilitation activities. But the HSE team knew these reactive measures would not be adequate in the long run. Although human error could not be completely prevented, the long-term solution entailed creating a culture in which each employee treated safety issues with paramount importance and took ownership of recording and reporting potential risks.

Garg was certain that the BBS program was the solution. GAIL had already committed to the program, but its implementation needed to be expedited. At the company’s annual general meeting in September 2014, the chairman and managing director announced:

Your Company places Health, Safety and Environment (HSE) practices at the very heart of all its operational processes . . . . To strengthen operating codes and standards, your Company is in the process of engaging internationally acclaimed process consultants to benchmark Global Best Practices for our hydrocarbon operations.[[13]](#footnote-13)

The head of fire and safety at Vijaipur, one of GAIL’s oldest plant sites, noted, “Being the youngest Maharatna, we could not have taken things for granted. We are trying to set best practices and standards which others can follow to inculcate safety culture.”

Garg attended a session on safety at the workplace in 2013, which had reinforced his belief that safe working conditions were needed for employees in the country’s oil and gas sector. He realized, though, that health and safety was as much a responsibility of the employees and workers at their own levels as it was the responsibility of the HSE department. The immediate challenge was to ensure employees took ownership of safety-related issues. In the long term, the organization also needed to integrate all offices and worksites to ensure a robust safety culture throughout the organization.

The HSE team discussed the concern with the company’s top management and officers. Two workshops were conducted for the managing director, members of the board, and executive directors. A trainer was invited from the British Safety Council to conduct these workshops, which encouraged management to reconsider the company’s safety practices and motivated them to undertake some proactive measures. However, the road ahead was still unclear.

Over the next few months, several brainstorming sessions were held, involving top management, company executives and directors, and the general managers from all plant sites. The British Safety Council also participated to help formulate an action plan. Management decided to first assess the current work and safety conditions at GAIL. Garg reminisced on management’s decision: “Before setting the road ahead, we had to know where we were right then.” Simultaneously, awareness sessions were organized for the officers in charge of operations and maintenance sites and middle management.

The HSE team, under the guidance of the British Safety Council, collated information on the best practices adopted by companies around the world. After due deliberation, management decided to implement the BBS program across all its work sites. The program aimed to build a strong safety culture by imbibing safety in all activities of the organization, from design to construction, commissioning, operations, and maintenance. The HSE department established BBS as being integral to the health and safety program at GAIL: “The fundamental premise for undertaking the BBS approach [at GAIL] is that ‘Safety is not a priority; it is a *core value* which is *non-negotiable*.’”

The next step was to identify and recruit the suitable consultants and subject-matter experts who could assist the company to design and implement the program. In this context, Garg recalled:

Being a public-sector unit, we maintain the highest level of transparency when awarding work contracts. As such, we decided to float a global tender for interested parties through an international bidding process. We were looking for such consultants who had previous experience implementing the BBS concept in a large industrial set-up.

The senior manager of the corporate HSE department explained his choice of the BBS program:

There were other versions of the module available, but they did not focus on ground-level risk behaviours that lead to accidents. BBS was a unique program, monitoring each worker on the ground during work execution and correcting them immediately. The monitoring happens on a daily basis, thereby making it a continuous process. BBS is an exercise and a tool to focus and address the behaviours of all personnel involved, toward enhancing safety of the people, equipment, plants, and community at large. It is an employee empowerment and responsibility to progressively create and sustain a total safety culture.

GAIL selected its consultant: a Bengaluru-based company, Obul Consultancy and Contracts, which had prior experience in implementing BBS in a petroleum firm in Oman. The consultant also brought in Dr. H. L. Kaila, a former professor of psychology at Mumbai University, to help implement BBS at GAIL. Kaila was a BBS trainer and implementer with more than 30 years of professional experience in organizational psychology. Importantly, Kaila had pioneered BBS training in India and was a member of the expert panel at the National Safety Council.

Implementation of Behaviour-Based Safety at GAIL

Between November 2013 and October 2016, GAIL took a series of steps to incorporate BBS in an effort to enhance the organization’s safety culture (see Exhibit 6).

Once the awareness sessions were completed at all sites, the HSE team began searching for a site to rolling out its pilot module. Garg believed that a successful first rollout would act as a trendsetter for the other sites. The issue was resolved when the officer in charge of the Usarplant invited the HSE team to roll out the BBS program at that site. The company soon identified the functional committees and lead trainers. The employees at the Usar plant welcomed the changes introduced by BBS, such as making monthly reports of safe and unsafe behaviours (initially recorded manually by employees in their diaries), creating more awareness about BBS, and training contract workers and sensitizing them to the significance of following standard operating procedures and the BBS checklist when performing any task. The success of the pilot project motivated other sites to proceed with the program. Gradually, the program was implemented at all other sites; however, acceptance of the program among the workers was not smooth at all plant sites. A lead trainer at the Vijapur site recalled his first experience when correcting a junior engineer’s unsafe behaviour:

He argued, saying, “I am doing this task from the last 15 years, no accident has happened to date, [and] now will you teach me how to do it.” This reaction was a typical instance of resistance to change. Many lead trainers faced similar issues in convincing their fellow employees and contract workers at other sites as well. [The lead trainers] were also hesitant to coach and correct unsafe behaviours of those who were senior to them, either by age or in the organizational hierarchy. . . .

I knew this [situation with the junior engineer] was tough to handle; moreover, he was of my father’s age and would be uncomfortable listening to me. So, I began talking and convincing others on his team. When the engineer saw his friends agreeing to what I was saying, [the engineer] gradually started feeling inclined toward BBS. Meanwhile, I also started reporting the unsafe behaviours on the BBS portal and shared my challenges with other lead trainers.

GAIL’s management awarded this trainer the “Best Lead Trainer” title for three consecutive months. To further motivate the trainers, the management introduced other rewards specifically for the BBS program, such as the “Best Observer Award” and the “Best Functional Committee.” The BBS awards for best lead trainer from each gas processing plant and the award for the best BBS-implemented site were awarded annually from the corporate level by the director of human resources and the director of projects.

In December 2014, Ravindran launched a user-friendly BBS portal on GAIL’s intranet with an aim to centralize and automate the recording of safe and unsafe behaviours across all plant sites. The portal could be used to monitor BBS implementation across all GAIL work sites. Observational data from any location could be recorded and used with functionalities such as data analysis, generating reports, and showing trends for effective monitoring of BBS implementation across all GAIL locations. While launching the portal, Ravindran said:

While initiating BBS is a challenge, sustaining behavioural-based safety is even a bigger challenge. Understanding this challenge, the corporate HSE department has developed a web-based BBS centralized portal with the help of [the business and information system] department to facilitate the observation feedback process and smooth implementation of BBS across all GAIL locations. The BBS portal is customized to GAIL requirements and integrated with the GAIL database. The homepage of the portal facilitates to showcase the management commitment and communication toward safety by means of delivering key messages to all employees and participating in BBS and safety activities.

The portal released the employees from the need to manually record observations, but several other challenges still remained. At some plant sites, employees saw BBS as an additional responsibility, apart from the daily tasks assigned to them. They showed no curiosity about the change initiative and considered it as “just another change program.”

While sharing his experience, a lead trainer from Pata said:

At times, I felt demotivated. My colleagues, whom I was supposed to train, would say nothing is going to change. Like earlier programs, this will also come and go. . . . There were others who said this is the safety department’s initiative; let them work for it. . . . I was encouraged by my manager to work for the cause, though some other department managers may not have felt the need to change. In such cases, what will my peer lead trainers do? They may not be ready to raise a concern since the manager directed them to focus on their own work.

The contract companies and supervisors at some locations were also not supportive. The contract workers were not being issued personal protective equipment in a timely manner. Probing further, it was found that although GAIL had paid the contractor for the purchase of equipment for its contract workers, the contract supervisors, due to ignorance or lack of interest, were not issuing the equipment to the workers. Several warnings and messages were sent to these companies, and GAIL mandated that no workers would be allowed to enter the plant site without personal protective equipment. Gradually, the situation improved, but several supervisors still remained averse to BBS. They also considered the program to be an additional responsibility.

Despite these challenges, the HSE team, with the help of the lead trainers, continued to sensitize employees and contract workers to the need for safe behaviours. They gradually began accepting and incorporating the lead trainers’ suggestions; however, when work pressure increased and deadlines loomed, there was an urge to revert to earlier procedures. Informally, employees coined a new expression in Hindi, the local language, for the acronym “BBS”—*Bol ke Samjhao*, meaning“Keep repeating it until people understand.” The advantages of BBS were further communicated to the contract employees through initiatives such as posters, plays, and awareness walks. The desk calendar for 2016 was designed in-house with BBS as its theme, as BBS percolated down the company’s hierarchy.

Future Challenges

In August 2016, GAIL’s BBS portal reported 87 per cent compliance with safe behaviour. A few months earlier, construction and commissioning of the second phase of the Pata petrochemical plant had been successfully completed with 60 million accident-free labour hours. By September 2016, the rollout and training phases were successfully completed. As a result of GAIL having implemented BBS and significantly changing the company’s safety performance, the Oil Industry Safety Directorate under the Ministry of Petroleum and Natural Gas awarded four coveted safety awards to GAIL installations, one of them for the newly completed Pata petrochemical plant. But did these achievements indicate that a culture of safety had been inculcated in GAIL’s employees?

In the January 2016 issue of the company’s safety newsletter, Garg wrote:

The challenge we face today is to sustain this “Behaviour Shaping” movement till complete adoption of BBS in our Operation, Maintenance, Construction and Project Activities. I am sure we will be able to achieve our goal with your active participation. . . . Together, we can develop World Class Safety Culture in our Organization.

According to Garg, achieving 100 per cent safe behaviour was not possible; a realistic limit was 95 per cent. GAIL work sites were beginning to show evidence of declining returns. The initial excitement for the program gradually began to wane, and some employees still viewed BBS as a “flavour-of-the-day” program and did not expect top management to continue to focus on it. With the pressure of primary responsibilities, employees tended to make all such initiatives a low priority. Gradually, the feeling of complacency started creeping in. Although the organization was growing in its employee base, few new volunteers were stepping forward to undertake the role of lead trainers. The existing lead trainers felt that subsequent training programs to train their peers failed to generate the same intensity as in the previous three years. A lead trainer at Pata reported:

I volunteered for the BBS training and felt happy on becoming a lead trainer from my department. In the first year, my co-trainers and I took many initiatives like BBS Nukkad Natak,[[14]](#footnote-14) BBS Walk, et cetera. We used to organize training and assumed others were also interested like we were. But I don’t see the same enthusiasm amongst my colleagues. Even though some are willing . . . other tasks take priority. Who wants to organize training at the cost of their own time or just for a small reward? For continuous learning, all of us need the same vigour for the cause.

One lead trainer at Vijapur said:

Reaching 80–85 per cent is not difficult, but reaching near to perfection is a challenge. . . . A worker feels empowered when you talk to him about his safety; they feel happy that the organization is concerned about them, their safety, and their lives. They understand [that] understanding is not enough; the actions should continue, and we are still lagging. We need reinforcement as trainers as well. . . . Companies like Siemens [AG] come to GAIL . . . and safety is in their culture. I want that GAIL is also able to replicate it. But again, reaching perfection is a challenge. To ensure that this organization-level change penetrates down to the actions of each employee is a challenge.

A lead trainer at Pata shared her experience:

Recently, on August 15th, we made a surprise visit on work sites in the [Pata] plant and the [general manager of operations] gave cash awards to workers who displayed safe behaviours. They felt elated and recognized. I think support from top management will help in sustaining BBS now.

To understand the reasons behind the fading interest among employees, the HSE team initiated monthly visits to all the sites to discuss the concerns with officers in charge and the managers. Internally, Garg knew that all change initiatives would gradually become stale and require some “newness,” but what novelty could be brought to BBS at this stage? It was felt that if the organization focused too much on cash incentives and other extrinsic forms of reward to drive lead trainers, then it could jeopardize the intrinsic motivation required for a program such as BBS. The HSE team pondered how to continually reach out to more than 10,000 employees and contract workers on a sustained basis and make them co-owners of BBS. This exercise required more lead trainers, but would department managers spare their resources? Garg was aware that the HSE team was running out of time, as he called in his team to brainstorm what could be done to accelerate the pace and sustain the BBS initiative in the long run.

Exhibit 1: Oil and Gas Industry Value Chain

In the oil and gas industry, companies operated at three levels based on their expertise in processing the raw material: upstream, midstream, and downstream. The companies in the upstream segment dealt with extraction and production of oil and gas. Companies in the midstream segment had expertise in transportation, wholesale marketing, and storage of oil and gas. Once the transportation was done through pipelines and the natural gas reached refineries, other processes, including refining, purifying, and processing, were undertaken at the plants. The downstream sector involved marketing and distribution of the end products derived from petroleum and gas.

Anatomy of the Oil and Gas Sector Value Chain

Source: India Brand Equity Foundation, *Oil & Gas: Market & Opportunities*, n.d., accessed November 20, 2016, www.ibef.org/download/Oil\_Gas\_210708.pdf.

Exhibit 2: GAIL (India) Limited, Business Verticals

Natural Gas (Transmission and Marketing)

* 10,977 kilometres of robust gas pipeline infrastructure with a capacity of 210 million standard cubic metres per day
* Pipeline network covering 16 Indian states and 2 union territories

Liquid Hydrocarbon Processing

* Gas processing unit products marketed include liquefied petroleum gases, propane, pentane, naphtha, and by-products of polymer plant such as propylene and hydrogenated C4 mix
* 7 gas processing units in operation:
  + Vijaipur (2 units), Auraiya, Vaghodia, Usar, Lakwa, and Gandhar—production of liquefied petroleum gases
  + Pata—gas compression unit for production of polymer

Liquid Petroleum Gas (LPG) Transmission

* First company in India to own and operate pipelines for LPG transmission
* 2,038 kilometres of LPG pipeline network:
  + 1,415 kilometres connect the western and northern parts of India
  + 623 kilometres connect the eastern coast in the southern part of the country

Petrochemicals

* Owns and operates gas-based petrochemical complex at Pata
* Uses world-class polymerization process licensed from NOVA Chemicals Corporation (Canada) to produce linear low-density polyethylene and high-density polyethylene
* Has two slurry-based polymerization processes licensed from Mitsui Chemicals Incorporated (Japan) to produce high density polyethylene

City Gas Distribution

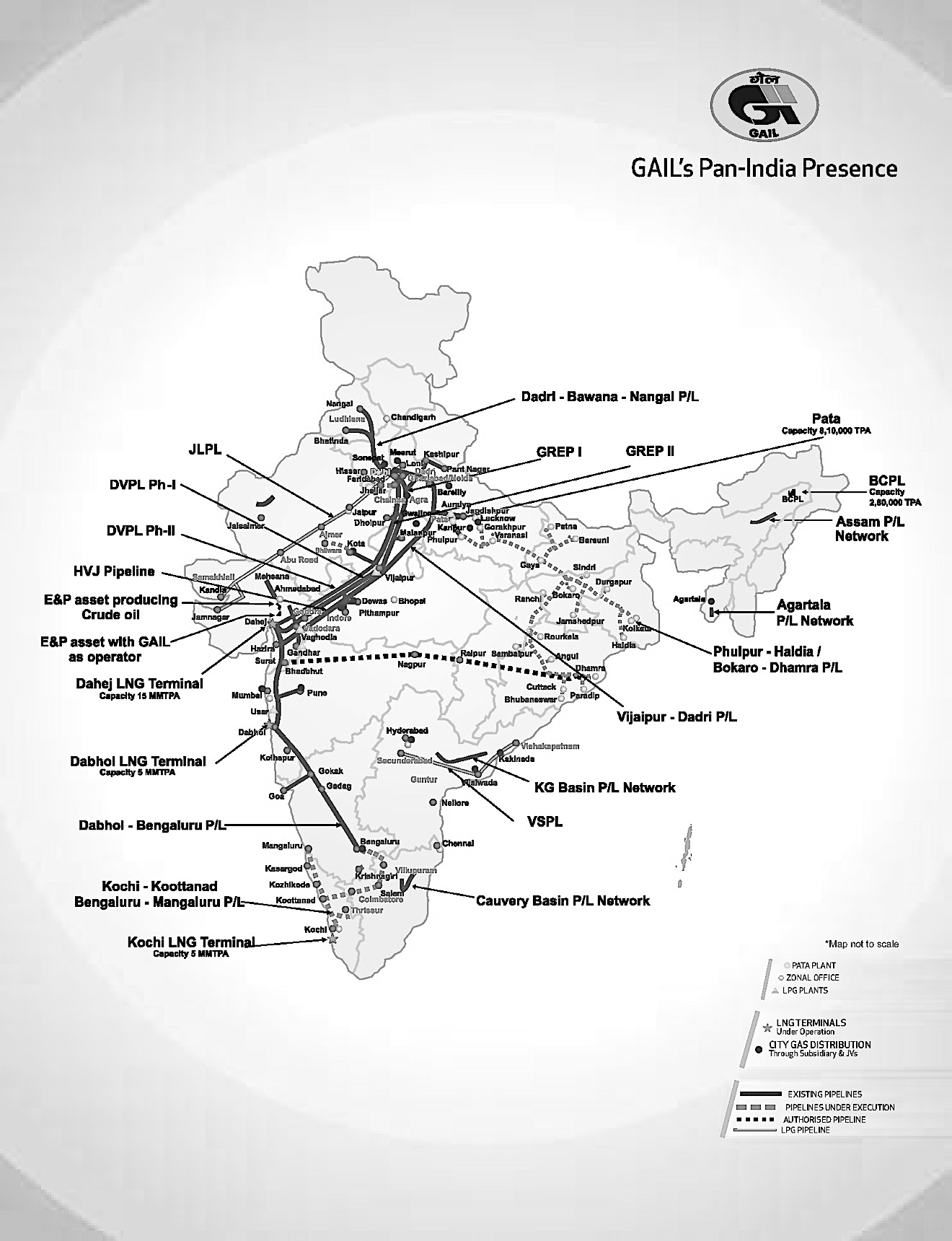
* Pilot projects launched in early 1990s in two metros, Delhi and Mumbai, through joint ventures with Indraprastha Gas Limited and Mahanagar Gas Limited
* Led to the beginning of commercial operation of city gas projects

Exploration and Production

* In 2017, participating in 13 exploration and production blocks in basins located in western and eastern regions of India and Myanmar
* Partnerships in these blocks include companies such as Oil and Natural Gas Corporation Limited, Oil India Limited, Gujarat State Petroleum Corporation, Bharat PetroResources Limited, and Hardy Exploration & Production (India) Incorporated

Source: GAIL (India) Limited, “Natural Gas,” last modified June 9, 2017, accessed June 19, 2017, www.gailonline.com/final\_site/BV-NarutalGas.tml; GAIL (India) Limited, “Liquid Hydrocarbons,” last modified May 31, 2017, accessed June 19, 2017, www.gailonline.com/final\_site/BV-LiquidHydrocarbons.html; GAIL (India) Limited, “LPG Transmission,” last modified June 7, 2017, accessed June 19, 2017, www.gailonline.com/final\_site/BV-LiquidHydrocarbons.html; GAIL (India) Limited, “Petrochemicals,” last modified June 2, 2017, accessed June 19, 2017, www.gailonline.com/final\_site/BV-Petrochemicals.html; GAIL (India) Limited, “City Gas Distribution,” last modified May 30, 2017, accessed June 19, 2017, www.gailonline.com/final\_site/BV-CityGasDistribution.html; GAIL (India) Limited, “Exploration & Production,” last modified February 5, 2018, accessed March 27, 2018, www.gailonline.com/final\_site/BV-EP.html.

Exhibit 3: GAIL (India) Limited, plant and office locations in India



Note: JLPL = Jamnagar-Loni Pipeline; DVPL = Dahej-Vijaipur Pipeline; Ph = Phase; HVJ = Hazira-Vijaypur-Jagdishpur Pipeline; E&P = exploration and production; LNG = liquefied natural gas; P/L = pipeline; VSPL = Vizag-Secunderabad Pipeline; BCPL = Brahmaputra Cracker and Polymer Limited; GREP = Gas Rehabilitation and Expansion Project; JVs = joint ventures

Source: GAIL (India) Limited, *Annual Report 2016–17: Rejuvenate. Resonate. Redefine*, 245, accessed October 12, 2017, www.gailonline.com/final\_site/pdf/InvestorsZone/AnnualReports/Annual\_Report\_2017.pdf.

Exhibit 4: Behaviour-Based Safety Checklist

Employees observed and recorded safe and unsafe behaviours at the workplace using the following checklist:

|  |
| --- |
| Wear personal protective equipment such as helmets, safety belts, and gloves |
| Keep work areas clean and free of debris |
| Use tools and equipment as instructed |
| Follow outlined ergonomic guidelines |
| Handle material as instructed |
| Communicate effectively |
| Follow outlined procedures |
| Pay close attention to your surroundings |
| Avoid the use of mobile telephones at work |

Every employee and contract worker was expected to electronically or manually record both safe and unsafe behaviour corresponding to each. Employees and workers were trained and encouraged to correct the unsafe behaviours of their peers.

Source: Company documents.

Exhibit 5: Behaviour-Based Safety Process

Behaviour-Based Safety (BBS)

Source: Company documents.

Exhibit 6: project implementation of Behaviour-Based Safety (BBS) at GAIL (India) Limited

|  |  |
| --- | --- |
|  | \* Initial awareness sessions organized for the chairman and managing director, directors, and top management in the first half of 2013 |
|  | Stage 1: Gap Assessment   1. Safety management evaluation against global best practices at all sites, conducted by the consultant; survey reported 65% safe and 35% unsafe behaviour. 2. Roadmap developed. |
|  | Stage 2: BBS Awareness and Capability Development   1. Using a “train the trainer” approach, 200 lead trainers were developed across all operations and maintenance sites with specialized training for four days. Also, 25% of employees at each plant site were identified, and the consultant provided five days’ training on BBS. Overall, the consultant trained 1,086 employees and conducted 50 one-day workshops. 2. Lead trainers were given the responsibility to further train and create awareness about BBS among the remaining employees and workers (75% of the staff) at their respective sites. Each employee/contract worker who received training became an observer, responsible for observing and recording both safe and unsafe behaviour. Observers were also expected to correct unsafe behaviours on the spot. |
|  | Stage 3: BBS Rollout   1. Corporate steering committee, led by the executive director, was formed. Site steering committee and functional committees were formed at each plant site (see Exhibit 7). 2. Roadmap for sustaining BBS lead trainers allocated to functional committees, which were responsible for training all employees and workers and ensuring that standard operating procedures were followed. Timelines set for the lead trainers to train the employees and spread awareness about BBS. Functional committees and lead trainers took various initiatives to spread awareness about BBS, such as Nukkad Natak, cricket matches, and processions by school children. 3. Development of centralized software for data collection and monitoring: BBS portal developed by the business and information system department with input from HSE team. 4. Plan for motivation: Awards such as best observer, best lead trainer, best functional committee given to keep employees motivated. |
|  | Stage 4: BBS Support and Sustenance (ongoing)   1. Bimonthly follow-up visit at each phase location by consultant for one year. 2. Review: Every 10th day of the month, functional committee heads met and discussed progress. Celebrated as “Safety Day of the Month” at GAIL. 3. Support for continuous improvement from top management and employees. |

Note: HSE = health, safety, and environment

Source: Created by the author.

Exhibit 7: Sample Organizational Structure for Behaviour-Based Safety Implementation (at the Pata Plant)

Note: SOP = standard operating procedures; BBS = behaviour=based safety; O&M = operations and maintenance; PPE = personal protective equipment;

Source: Company documents.

1. Dr. Peter Michael Senge was best known for his book *The Fifth Discipline: The Art and Practice of the Learning Organization* (New York, NY: Doubleday, 1990). [↑](#footnote-ref-1)
2. India’s public-sector enterprises were classified into three categories based on the degree of financial autonomy granted by the Government of India: Maharatna, Navratna, and Miniratna. Of the three categories, a Maharatna enterprise had the highest financial autonomy. It could invest up to ₹50 billion or an amount equivalent to 15 per cent of the organization’s net worth in a project without the government’s intervention. Source: Bombay Stock Exchange Public Service Undertakings (BSEPSU), “The Maharatnas,” accessed March 26, 2018, www.bsepsu.com/maharatnas.asp; Department of Public Affairs, Government of India, “Maharatna, Navratna and Miniratna CPSEs,” accessed February 4, 2018, http://dpe.gov.in/about-us/management-division/maharatna-navratna-miniratna-cpse. [↑](#footnote-ref-2)
3. GAIL (India) Limited, “Our Vision & Values,” last modified February 22, 2017, accessed June 18, 2017, www.gailonline.com/final\_site/AB-Visoin.html. [↑](#footnote-ref-3)
4. ₹ = INR = Indian rupee; all currency amounts in ₹ unless otherwise stated. ₹1 = US$0.01555 on April 30, 2017. [↑](#footnote-ref-4)
5. Internal company documents. [↑](#footnote-ref-5)
6. Open Government Data, Government of India, “State-Wise Industrial Injuries in Factories from 2007 to 2013,” accessed October 20, 2016, https://data.gov.in/catalog/industrial-injuries-factories. [↑](#footnote-ref-6)
7. Bureau of Labor Statistics, U.S. Department of Labor, “Workplace Injuries and Illnesses—2011,” news release, October 25, 2013, accessed April 13, 2018, www.bls.gov/news.release/archives/osh\_10252012.pdf; Health and Safety Executive, *Annual Statistics Report,* 2010/2011, accessed April 13, 2018, www.hse.gov.uk/statistics/overall/hssh1011.pdf. [↑](#footnote-ref-7)
8. Open Government Data, Government of India, op. cit. [↑](#footnote-ref-8)
9. Bureau of Labor Statistics, U.S. Department of Labor, “National Census of Fatal Occupational Injuries in 2016,” news release, December 19, 2017, accessed April 15, 2018, www.bls.gov/news.release/pdf/cfoi.pdf. [↑](#footnote-ref-9)
10. OSHAcademy Encyclopedia of Safety, “Best Practices in Behavior-Based Safety,” accessed October 31, 2016, www.oshatrain.org/notes/2gnotes02.html. [↑](#footnote-ref-10)
11. OHSAS 18001:2007 was an internationally applied British standard for occupational health and safety management systems. Source: Certification Europe, “OHSAS 18001:2007 Occupational Health and Safety Management Certification,” accessed March 29, 2018, www.certificationeurope.com/certification/ohsas-18001-occupational-health-and-safety-management; H. L. Kaila, *Behaviour Based Safety in Organizations* (Delhi, India: I.K. International Publishing House, 2008). [↑](#footnote-ref-11)
12. W. Atkinson, “Behaviour-Based Safety,” *Management Review* 89, no. 2 (2000): 41; E. Scott Geller, “Behavior-Based Safety and Occupational Risk Management,” *Behavior Modification* 23, no. 3 (2005): 539–561. [↑](#footnote-ref-12)
13. GAIL (India) Limited, *30th Annual General Meeting* (report), September 17, 2014, 7, accessed October 31, 2016, www.gailonline.com/final\_site/pdf/InvestorsZone/AGMSpeech/agm-2014.pdf. [↑](#footnote-ref-13)
14. Nukkad Natak [street play] was an initiative undertaken by BBS lead trainers in Pata to spread awareness about the program. [↑](#footnote-ref-14)